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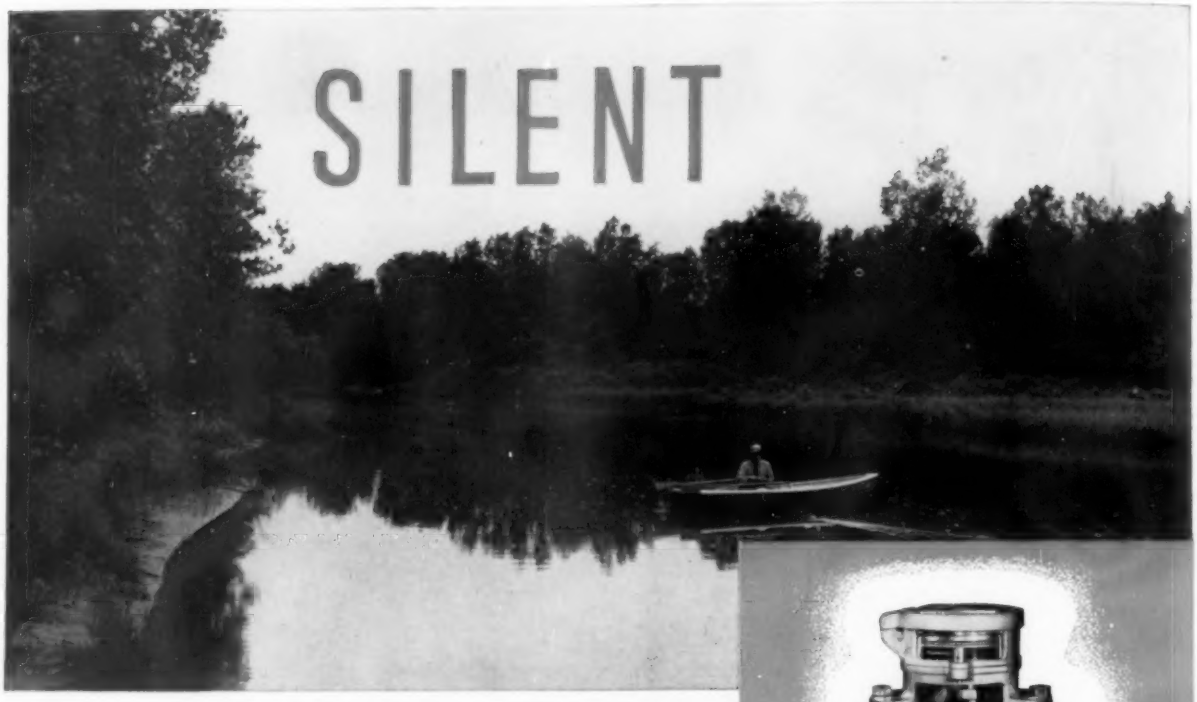
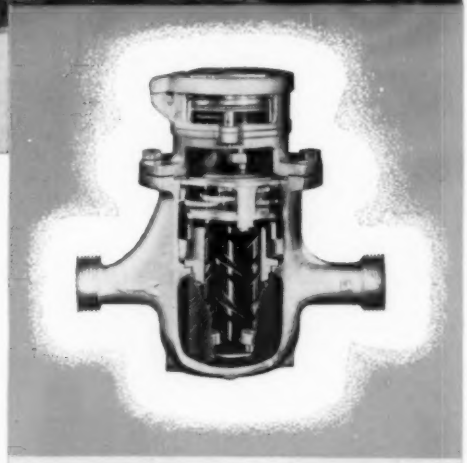



# The PITTSBURGH IMO METER



THE absolute noiseless operation of the IMO Meter is a feature much appreciated by waterworks men who have long been troubled by consumer complaints over the annoying clicking sound made by conventional meters. With ordinary meters this noise varies in intensity with the length of service. A worn meter, especially when installed in certain types of frame dwellings, can produce a disturbance which will be amplified and telegraphed throughout the entire structure. The increasing use of flexible copper tubing in plumbing also accentuates the transmission of meter noise.

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## *The Unique Measuring Chamber Responsible for the Accuracy, Silence and Long Life*

NICKEL-BRONZE MEASURING CHAMBER

THE ROTORS

MONEL METAL FINE MESH STRAINER

The accompanying illustrations show the fundamental elements of the IMO measuring chamber. Three hard rubber screws, called rotors, mesh with each other and closely fit in the bore of a nickel bronze casing. Water enters this casing, or measuring chamber, from the bottom and, as it is forced upwards by line pressure, causes the rotors to turn from its path. They rotate in a continuous flow with the threads of rotors acting as a continuous piston always moving in a forward direction. The center rotor drives the register while the two side rotors serve as the sealing mediums. A circular mesh strainer of monel metal completely encircles the measuring chamber.

*Remember*—PITTSBURGH IMO METERS WEAR IN WHERE OTHERS WEAR OUT

# 1940 Population Figures for 274 Cities

## *Urban Growth Slowing Down*

A SLOWING down of population growth of most cities throughout the United States during the 1930-40 decade as compared with previous decades, is evident from data currently being made available by the Bureau of the Census.

The following tabulation covers every city having a 1940 population of over 100,000 (94 in number) and 180 other cities of over 25,000 population for which figures had been released up to June 23. The Department of Commerce calls attention to the fact that these population figures are based on counts made by the District Supervisors in the field and may be changed somewhat when the final count is made in Washington.

| City | Population 1940 | Per Cent Increase 1930-1940 | Per Cent Increase 1920-1930 |
|---|---|---|---|
| Abilene, Texas | 27,292 | 17.8 | 125.6 |
| Akron, Ohio | 243,130 | —4.7 | 22.4 |
| Albany, N. Y. | 130,447 | 2.3 | 12.4 |
| Albuquerque, N. Mex. | 35,378 | 33.2 | 75.3 |
| Alexandria, La. | 26,997 | 17.3 | 31.5 |
| Alhambra, Calif. | 38,820 | 31.7 | 224.0 |
| Allentown, Pa. | 96,827 | 4.6 | 25.9 |
| Amarillo, Texas | 51,497 | 19.4 | 178.4 |
| Anniston, Ala. | 25,477 | 14.0 | 26.0 |
| Appleton, Wis. | 28,398 | 12.4 | 29.2 |
| Arlington*, Mass. | 39,939 | 10.7 | 93.4 |
| Ashland, Ky. | 29,526 | 1.6 | 97.4 |
| Atlanta, Ga. | 302,538 | 11.9 | 34.8 |
| Atlantic City, N. J. | 63,787 | —3.6 | 30.6 |
| Auburn, N. Y. | 35,705 | —2.6 | 1.3 |
| Augusta, Ga. | 65,945 | 9.3 | 14.8 |
| Austin, Texas | 86,311 | 62.5 | 52.3 |
| Bakersfield, Calif. | 27,694 | 6.5 | 39.6 |
| Baltimore, Md. | 854,144 | 6.1 | 9.7 |
| Bangor, Maine | 29,911 | 4.0 | 10.7 |
| Bay City, Mich. | 48,019 | 1.4 | —0.4 |
| Bayonne, N. J. | 78,905 | —11.3 | 15.9 |
| Belleville, N. J. | 28,059 | 4.0 | 72.2 |
| Bellingham, Wash. | 28,802 | —6.6 | 20.5 |
| Belmont*, Mass. | 26,825 | 23.3 | 102.3 |
| Belvedere*, Calif. | 37,058 | 12.2 | 420.9 |
| Berwyn, Ill. | 48,474 | 3.1 | 232.3 |
| Bethlehem, Pa. | 58,478 | 1.0 | 15.0 |
| Beverly, Mass. | 25,540 | 1.8 | 11.2 |
| Binghamton, N. Y. | 78,278 | 2.1 | 14.8 |
| Birmingham, Ala. | 264,151 | 1.7 | 45.2 |
| Bloomfield, N. J. | 41,636 | 9.3 | 72.9 |
| Bloomington, Ill. | 32,826 | 6.1 | 7.7 |
| Boise, Idaho | 25,987 | 20.6 | 0.7 |
| Boston, Mass. | 769,520 | —1.49 | 4.4 |
| Bridgeport, Conn. | 146,900 | 0.1 | 2.2 |
| Bristol, Conn. | 30,103 | 5.8 | 38.0 |
| Brockton, Mass. | 62,262 | —2.4 | —3.7 |
| Brookline*, Mass. | 49,278 | 3.8 | 25.8 |
| Buffalo, N. Y. | 575,150 | 0.4 | 13.1 |
| Burbank, Calif. | 43,090 | 104.6 | 472.0 |
| Burlington, Iowa | 25,803 | —3.6 | 11.2 |
| Burlington, Vt. | 27,128 | 9.4 | 8.8 |
| Butte, Mont. | 36,964 | —6.5 | —5.0 |
| Cambridge, Mass. | 111,120 | —2.2 | 3.6 |
| Camden, N. J. | 117,777 | —0.8 | 2.1 |
| Canton, Ohio | 107,862 | 2.8 | 20.5 |
| Charleston, W. Va. | 67,282 | 11.4 | 52.5 |
| Charlotte, N. C. | 100,327 | 21.4 | 78.4 |
| Chattanooga, Tenn. | 128,138 | 7.0 | 106.9 |
| Chester, Pa. | 59,278 | 0.2 | 2.0 |
| Chicago, Ill. | 3,384,556 | 0.2 | 25.0 |
| Cicero, Ill. | 64,438 | —3.2 | 48.0 |
| Cincinnati, Ohio | 452,852 | 0.4 | 12.4 |
| Clarksburg, W. Va. | 30,543 | 5.8 | 3.6 |
| Cleveland, Ohio | 878,385 | —2.45 | 13.0 |
| Clinton, Iowa | 26,231 | 2.0 | 6.5 |
| Colorado Springs, Colo. | 36,130 | 8.7 | 10.4 |
| Columbia, S. C. | 60,505 | 17.3 | 37.5 |
| Columbus, Ga. | 53,104 | 23.1 | 38.6 |
| Columbus, Ohio | 304,936 | 4.9 | 22.6 |
| Concord, N. H. | 26,989 | 7.0 | 13.8 |
| Corpus Christi, Texas | 57,443 | 107.1 | 163.6 |
| Dallas, Texas | 293,306 | 12.6 | 63.8 |
| Danville, Va. | 32,745 | 47.2 | 3.3 |
| Davenport, Iowa | 65,963 | 8.6 | 7.1 |
| Dayton, Ohio | 211,456 | 5.2 | 31.7 |
| Decatur, Ill. | 59,129 | 2.8 | 31.2 |
| Denver, Colo. | 318,415 | 10.6 | 12.2 |
| Des Moines, Iowa | 159,155 | 11.6 | 12.7 |
| Detroit, Mich. | 1,618,549 | 3.2 | 57.9 |
| Dubuque, Iowa | 43,833 | 5.2 | 6.5 |
| Duluth, Minn. | 100,238 | —1.2 | 2.6 |
| Durham, N. C. | 59,731 | 14.8 | 139.6 |
| East St. Louis, Ill. | 75,469 | 1.5 | 11.4 |
| Elizabeth, N. J. | 109,396 | —4.5 | 19.6 |
| El Paso, Texas | 96,677 | —5.6 | 32.1 |
| Elyria, Ohio | 25,031 | —2.3 | 25.2 |
| Enid, Okla. | 28,050 | 6.3 | 59.3 |
| Erie, Pa. | 116,247 | 0.2 | 24.2 |
| Evansville, Ind. | 111,034 | 8.6 | 19.9 |
| Everett, Wash. | 29,975 | —1.9 | 10.6 |
| Fall River, Mass. | 115,567 | 0.3 | —4.3 |
| Fargo, N. Dak. | 33,109 | 15.7 | 30.3 |
| Fitchburg, Mass. | 41,497 | 2.0 | —0.8 |
| Flint, Mich. | 151,275 | —3.3 | 70.8 |
| Fond du Lac, Wis. | 27,156 | 2.7 | 12.9 |
| Fort Smith, Ark. | 36,540 | 16.3 | 8.9 |
| Fort Wayne, Ind. | 116,190 | 1.1 | 32.8 |
| Fort Worth, Texas | 177,748 | 8.7 | 53.5 |
| Gadsden, Ala. | 37,014 | 54.0 | 63.1 |
| Galveston, Texas | 60,334 | 14.0 | 19.6 |
| Garfield, N. J. | 27,988 | —5.9 | 53.4 |
| Gary, Ind. | 110,863 | 10.4 | 81.3 |
| Grand Rapids, Mich. | 164,061 | —2.7 | 22.5 |
| Great Falls, Mont. | 29,724 | 3.1 | 19.5 |
| Green Bay, Wis. | 45,840 | 22.5 | 20.6 |
| Greensboro, N. C. | 58,786 | 9.7 | 169.7 |
| Greenville, S. C. | 34,745 | 19.2 | 26.1 |
| Hackensack, N. J. | 26,228 | 6.8 | 39.1 |
| Hagerstown, Md. | 32,441 | 5.1 | 10.0 |
| Hamtramck, Mich. | 50,160 | —10.9 | 15.7 |
| Hartford, Conn. | 166,329 | 1.4 | 18.9 |
| Hazelton, Pa. | 37,979 | 3.3 | 13.9 |
| High Point, N. C. | 38,449 | 4.6 | 156.9 |
| Hoboken, N. J. | 49,603 | —16.3 | —13.1 |
| Houston, Texas | 386,150 | 32.1 | 111.4 |
| Huntington, W. Va. | 78,781 | 4.2 | 50.6 |
| Huntington Park, Calif. | 28,222 | 14.8 | 444.9 |
| Hutchinson, Kans. | 29,613 | 9.3 | 16.3 |
| Indianapolis, Ind. | 386,170 | 6.0 | 15.9 |
| Irvington, N. J. | 54,955 | —3.1 | 122.7 |
| Jackson, Mich. | 61,965 | 28.3 | 111.6 |
| Jacksonville, Fla. | 174,336 | 29.0 | |
| Jersey City, N. J. | 301,012 | 4.95 | 6.2 |
| Joliet, Ill. | 41,936 | —2.5 | 11.8 |
| Kansas City, Kans. | 121,258 | —0.5 | 20.4 |
| Kansas City, Mo. | 400,175 | 0.1 | 23.2 |
| Kearny, N. J. | 38,815 | —4.7 | 52.4 |
| Kenosha, Wis. | 48,464 | —3.6 | 24.2 |
| Kingston, N. Y. | 28,541 | 1.6 | 5.2 |
| Knoxville, Tenn. | 112,002 | 5.9 | 36.0 |
| Kokomo, Ind. | 33,910 | 3.2 | 9.2 |
| La Crosse, Wis. | 42,441 | 7.1 | 30.2 |
| Lancaster, Pa. | 61,284 | 2.2 | 12.8 |
| Laredo, Texas | 38,921 | 19.3 | 43.6 |
| Lima, Ohio | 44,764 | 5.9 | 2.3 |
| Lincoln, Nebr. | 81,846 | 7.8 | 38.2 |
| Little Rock, Ark. | 88,129 | 7.9 | 25.4 |
| Long Beach, Calif. | 163,441 | 15.1 | 155.5 |
| Lorain, Ohio | 43,927 | —1.3 | 19.4 |
| Los Angeles, Calif. | 1,496,792 | 20.9 | 114.7 |
| Louisville, Ky. | 318,713 | 3.6 | 31.0 |
| Lowell, Mass. | 101,331 | 1.1 | —11.1 |
| Lubbock, Texas | 31,588 | 53.9 | 406.5 |
| Lynchburg, Va. | 44,470 | 9.4 | 35.2 |
| Macon, Ga. | 57,793 | 7.4 | 1.6 |
| Madison, Wis. | 66,802 | 15.4 | 50.9 |
| Malden, Mass. | 57,836 | —0.3 | 18.2 |
| Manchester, N. H. | 77,625 | 1.0 | —2.0 |
| Mansfield, Ohio | 36,895 | 10.1 | 20.5 |
| Marion, Ind. | 26,727 | 9.1 | 3.2 |
| Marion, Ohio | 30,785 | —1.0 | 11.4 |
| Maywood, Ill. | 26,583 | 2.9 | 114.0 |
| Medford, Mass. | 63,123 | 5.7 | 53.0 |
| Melrose, Mass. | 25,258 | 9.0 | 27.3 |
| Memphis, Tenn. | 291,313 | 15.05 | 55.9 |
| Meriden, Conn. | 39,455 | 2.5 | 28.8 |
| Meridian, Miss. | 35,410 | 10.8 | 36.6 |
| Miami, Fla. | 170,877 | 54.4 | 274.1 |
| Miami Beach, Fla. | 27,340 | 321.0 | 908.4 |
| Middletown, Ohio | 31,230 | 4.1 | 27.1 |
| Milwaukee, Wis. | 589,558 | 2.0 | 26.5 |
| Minneapolis, Minn. | 489,971 | 5.5 | 22.0 |
| Moline, Ill. | 34,599 | 7.3 | 4.9 |
| Monroe, La. | 28,330 | 8.8 | 105.3 |
| Mt. Vernon, N. Y. | 67,120 | 9.1 | 43.9 |
| Muskegon, Mich. | 47,502 | 14.8 | 13.2 |
| Muskogee, Okla. | 32,314 | 0.9 | 5.8 |
| Nashua, N. H. | 32,860 | 4.4 | 10.9 |
| Nashville, Tenn. | 167,415 | 8.8 | 30.0 |
| Newark, N. J. | 428,236 | —3.2 | 6.7 |
| Newark, Ohio | 31,294 | 2.3 | 14.5 |
| New Bedford, Mass. | 110,214 | —2.1 | —7.1 |
| New Britain, Conn. | 68,581 | 0.7 | 14.9 |
| New Brunswick, N. J. | 33,165 | —4.0 | 5.4 |
| New Haven, Conn. | 160,257 | —1.5 | 0.1 |
| New London, Conn. | 30,094 | 1.5 | 15.4 |
| New Orleans, La. | 492,282 | 7.3 | 18.5 |
| Newport, Ky. | 30,684 | 3.2 | 1.5 |
| Newport, R. I. | 30,402 | 10.1 | —8.7 |
| Newport News, Va. | 36,933 | 7.3 | —3.3 |
| Newton, Mass. | 69,625 | 6.7 | 41.7 |
| New York, N. Y. | 7,380,259 | 6.5 | 23.3 |
| Niagara Falls, N. Y. | 77,374 | 2.5 | 48.7 |
| Norfolk, Va. | 143,275 | 10.5 | 12.0 |
| Norristown, Pa. | 37,944 | 5.8 | 10.9 |
| North Bergen*, N. J. | 39,488 | —3.0 | 74.4 |
| Norwood, Ohio | 33,947 | 1.6 | 33.8 |
| Oakland, Calif. | 304,930 | 7.3 | 31.4 |
| Oak Park, Ill. | 65,591 | 2.5 | 63.5 |
| Oklahoma City, Okla. | 204,517 | 10.3 | 103.1 |
| Omaha, Nebr. | 223,185 | 4.3 | 11.7 |
| Orange, N. J. | 35,449 | 0.1 | 6.4 |
| Oshkosh, Wis. | 39,054 | —2.6 | 20.9 |
| Pasadena, Calif. | 81,566 | 7.2 | 67.8 |
| Passaic, N. J. | 61,341 | —2.6 | —1.4 |
| Paterson, N. J. | 139,651 | 0.8 | 1.9 |
| Peoria, Ill. | 105,003 | 1.0 | 37.9 |
| Perth Amboy, N. J. | 41,071 | —5.6 | 4.3 |
| Petersburg, Va. | 30,526 | 6.9 | —7.9 |
| Philadelphia, Pa. | 1,935,086 | —0.8 | 7.0 |
| Phoenix, Ariz. | 65,434 | 36.0 | 65.6 |
| Pittsburgh, Pa. | 665,384 | —0.7 | 13.8 |
| Plainfield, N. J. | 37,350 | 8.5 | 24.3 |
| Port Huron, Mich. | 32,738 | 4.4 | 20.9 |
| Portland, Ore. | 307,572 | 1.9 | 16.9 |
| Portsmouth, Va. | 50,087 | 10.9 | —16.0 |
| Providence, R. I. | 253,214 | 0.1 | 6.5 |
| Pueblo, Colo. | 51,805 | 3.4 | 16.4 |
| Quincy, Mass. | 76,605 | 6.4 | 53.4 |
| Racine, Wis. | 67,159 | —0.6 | 15.3 |
| Reading, Pa. | 110,704 | —0.4 | 3.1 |
| Richmond, Va. | 190,341 | 4.1 | 6.6 |
| Rochester, N. Y. | 324,694 | 1.0 | 10.9 |
| Sacramento, Calif. | 105,530 | 12.6 | 42.2 |
| Saginaw, Mich. | 82,697 | 2.5 | 30.4 |
| St. Joseph, Mo. | 75,802 | —6.3 | 3.8 |
| St. Louis, Mo. | 813,748 | —1.0 | 6.3 |
| St. Paul, Minn. | 288,023 | 6.0 | 15.7 |
| Salt Lake City, Utah. | 150,019 | 7.0 | 18.8 |
| San Angelo, Texas | 25,794 | 1.9 | 151.8 |
| San Antonio, Texas | 253,143 | 9.3 | 43.5 |
| San Diego, Calif. | 202,038 | 36.5 | 99.0 |
| San Francisco, Calif. | 629,553 | —0.76 | 25.2 |
| Santa Monica, Calif. | 52,828 | 42.2 | 143.5 |
| Savannah, Ga. | 95,271 | 12.1 | 2.1 |
| Schenectady, N. Y. | 86,226 | —9.9 | 7.9 |
| Scranton, Pa. | 140,393 | —2.1 | 4.1 |
| Seattle, Wash. | 366,847 | 0.3 | 15.9 |
| Sharon, Pa. | 25,324 | —2.3 | 19.1 |
| Sheboygan, Wis. | 39,881 | 1.6 | 26.8 |
| Shreveport, La. | 97,964 | 27.8 | 74.7 |
| Sioux City, Iowa | 82,385 | 4.0 | 11.2 |
| Sioux Falls, S. Dak. | 40,646 | 21.8 | 32.4 |
| Somerville, Mass. | 102,304 | —1.5 | 11.6 |
| South Bend, Ind. | 101,410 | —2.6 | 46.8 |
| South Gate, Calif. | 26,860 | 36.8 | *** |
| Spartanburg, S. C. | 32,521 | 13.2 | 26.9 |
| Spokane, Wash. | 122,462 | 6.0 | 10.6 |
| Springfield, Mass. | 148,989 | —0.6 | 15.7 |
| Springfield, Mo. | 61,026 | 6.1 | 45.2 |
| Steubenville, Ohio | 37,586 | 6.1 | 24.3 |
| Syracuse, N. Y. | 205,637 | —1.8 | 21.9 |
| Tacoma, Wash. | 107,520 | 0.7 | 10.2 |
| Tampa, Fla. | 107,674 | 6.4 | 96.0 |
| Taunton, Mass. | 37,445 | 0.2 | 0.6 |
| Terre Haute, Ind. | 62,546 | —0.4 | —5.0 |
| Texarkana, Ark. & Texas | 28,859 | 5.5 | 38.7 |
| Toledo, Ohio | 281,098 | —3.3 | 19.6 |
| Topeka, Kans. | 67,654 | 5.5 | 28.2 |
| Torrington, Conn. | 26,789 | 2.9 | 26.3 |
| Trenton, N. J. | 124,685 | 1.1 | 3.4 |
| Tucson, Ariz. | 36,763 | 13.1 | 60.2 |
| Tulsa, Okla. | 141,750 | 0.03 | 96.0 |
| Tuscaloosa, Ala. | 27,508 | 33.2 | 72.2 |
| Tyler, Texas | 28,256 | 65.1 | 41.6 |
| Union City, N. J. | 55,947 | —4.6 | 184.0 |
| University City, Mo. | 32,863 | 27.3 | 280.0 |
| Utica, N. Y. | 100,534 | —1.1 | 8.1 |
| Waltham, Mass. | 40,794 | 3.9 | 27.0 |
| Warren, Ohio | 42,413 | 3.3 | 51.8 |
| Washington, D. C. | 663,153 | 36.2 | 11.3 |
| Watertown*, Mass. | 35,200 | 0.8 | 62.7 |
| Watertown, N. Y. | 33,239 | 3.2 | 2.8 |
| Wauwatosa, Wis. | 26,701 | 26.0 | 264.3 |
| West Allis, Wis. | 36,146 | 4.3 | 152.2 |
| West Haven**, Conn. | 29,970 | 16.1 | |
| West New York, N. J. | 39,402 | 6.2 | 24.0 |
| West Orange, N. J. | 25,501 | 4.8 | 56.2 |
| Wheeling, W. Va. | 61,007 | —1.1 | 9.7 |
| Wichita, Kans. | 113,540 | 2.2 | 53.9 |
| Wichita Falls, Texas | 44,937 | 2.9 | 9.0 |
| Wilkes-Barre, Pa. | 86,130 | —0.6 | 17.3 |
| Williamsport, Pa. | 44,262 | —3.2 | 26.3 |
| Wilmington, Del. | 111,432 | 4.5 | —3.2 |
| Wilmington, N. C. | 32,980 | 2.2 | —3.3 |
| Winston-Salem, N. C. | 79,828 | 6.0 | 55.5 |
| Worcester, Mass. | 193,402 | —1.0 | 8.7 |
| Wyandotte, Mich. | 30,571 | 7.8 | 104.8 |
| Yakima, Wash. | 27,153 | 22.9 | 19.2 |
| Yonkers, N. Y. | 142,404 | 5.8 | 34.4 |
| Youngstown, Ohio | 167,426 | —1.5 | 28.4 |
| York, Pa. | 56,660 | 2.6 | 16.3 |

*Classified as urban under special rule.

**Classified as urban under special rule; organized in 1921 from a part of Orange town.

***Not incorporated until 1923.

A minus sign (—) denotes decrease.

# The Voice with a Smile

"We hold," says a well-known writer, "that the young ladies of the American long distance telephone wires make up what is probably the most efficient public service crew in the world. They have profound patience and that capacity for taking pains that some one once said is all that genius amounts to.

"We once called a fellow at a hotel in Philadelphia but he had just departed on an automobile trip in a westerly direction. A few days later the long distance operator caught up with him in a little town in Missouri and he was the most surprised man in all but one of the States of the Union. The exception was New York. We were the most surprised there. To this day we have no idea how the operator did it."

DAMON RUNYON
in the *New York Mirror*

BELL TELEPHONE SYSTEM

*The Bell System cordially invites you to visit its exhibits at the New York World's Fair and the Golden Gate International Exposition, San Francisco.*

When you write for that catalog, kindly mention THE AMERICAN CITY.

# Our Municipal Notebook

## *Tabloids of the Streets . .*

IMPORTANT FACTORS in the effectiveness of traffic signs are the need for, and the correctness of, their message, and their size, clarity, style, and appearance. If signs are too small, they are apt to be overlooked; if dingy, they may warn and inform of things past and gone; if wordy or difficult to read, or drab, they may irritate and confuse.

Standards are important in every industry and public effort. The same displayed message should always look the same, in size, in color, in shape, in wording, in clarity. Enduring standards, however, rarely appear in a pioneering period or in the development era which inevitably follows. Standards are set up in the third period, when conditions and results have become coordinated.

A movement is already on to use larger signs than those specified by the American Engineering Council, the American Association of State Highway Officials, and the United States Public Roads Administration. In Minneapolis, for instance, sunbursts are placed around the standard traffic signs. Size is an effort to gain attention. It cannot, however, be a successful substitute for the correct message. Size also connotes enforcement. A small, faded 20-mile-limit sign is observed only by milquetoasts or strangers. A large, bright 20-mile sign is imperative.

Modern traffic signs are really a conservative branch of the huge advertising industry. The commercial advertising sign is out to sell its message. It is brilliant, alert, stimulating, eager, with styles changing more rapidly than women's hats. Traffic signs should be more reserved; but the basic factors—new materials, reflecting devices, methods of display, which make commercial signs pay, should be kept up with and used in the design and application of traffic signs.

Highway signs merit strict standardization. They give simple facts which occur on all roads. Conditions in a city are different—unless the motorist is merely passing through, when he needs only the same type and appearance of information given on the open road. If he intends to make a stop in the city, he should have clear-cut directional information as well as local traffic information on speeds and parking, which will be furnished not only by signs but also by street markings, traffic signals, parking meters. Signs in the city, moreover, include street-name signs and house numbers. All are important, and where there is no standardization, there is the greater need to maintain the master standard of clarity. This is achieved if the stranger is told what town he is entering, finds his way around without difficulty, breaks no rules, and generally conducts himself like a resident, because he can read his way around.

*18-inch steel letters with Stimsonite ⅝-inch crystal reflectors offered by Signal Service Corporation*

### What Kind of Signs?

Any automobile trip—still more a tour—will convince the observing eye that, whether or not there may be an effort toward standardization of signs, there has in general been little effort to make the signs impressive in appearance.

A wide assortment of ready-made signs are available to municipalities. They not only include the stock wordings, but are made also in blanks suitable for special insertions. Constructed of enameled iron and guaranteed for ten years, they are suitable for many uses. The ready-made sign would not be ready-made if it had not proved its worth.

"Historical Site Ahead" adds to the zest of travel. Symbolistic signs at intervals along the road to an important point of interest or utility can be very helpful.

"Not Passable," if true, is better than "Road Closed," if not true.

"Caution — Pedestrian Crossing" warns both driver and pedestrian.

"School Zone" is cold. It may be that special school signs will lose their novelty or appeal, but at present the school sign that incorporates the image of a child brings much closer to the driver the true implication of a school zone.

Cities sometimes endeavor to command attention by reflectorizing their old warning signs. For obvious reasons it would be much more effective, and therefore economical as well, to discard the old signs and place new signs which from the day of their erection are intended to be observed and obeyed. These signs may be reflectorized or may be constructed of the new reflecting materials, such as Lucite and Prismo. Lucite is a material in its own right, like wood, steel, cement, having a grain which makes Lucite transparent and highly reflecting. It is being increasingly used for signs of all kinds. The Prismo process consists of embedding glass reflecting spheres in a pigment binder: the spheres (5,000,000 in a 24 x 24-inch sign) reflecting the color of the binder. Using these materials allows a fully reflectorized surface either in background or in the letter itself.

Signs once erected should not be forgotten, but should be inspected regularly with an eye for continued good appearance as well as the need for securing observance of the message they carry.


## Get These Two Studies

**PARKING METERS — Where they are, what they earn, who makes them**

**STREAMLINING MUNICIPAL OFFICE WORK — Modern tax billing and how the taxpayers appreciated it—and the need for complete municipal statistics**

**Either or both of these studies, appearing in THE MUNICIPAL INDEX for 1940-41, will be sent you without charge if you want them.**

**THE MUNICIPAL INDEX**
**470 Fourth Avenue**
**New York**

# A Bird's-eye view of MODERN ELEVATED STORAGE

THESE "bird's-eye" views of the two new elevated tanks which have been installed recently in the Kalamazoo, Mich., water supply system are an excellent example of the pleasing design and appearance being attained in Horton elevated storage tanks. The tank shown at the right employs the ellipsoidal design in both roof and bottom, and has a capacity of 350,000-gals. Illustrated above is a radial-cone bottom unit of 750,000-gals. capacity. Both tanks utilize the tubular column, or "Colonial" design.

Viewed from *any* angle, modern elevated storage offers definite advantages for both municipal and industrial water supply systems . . . more uniform distribution pressures—lower pumping costs—and increased protection against fire hazard, which is often an important factor in securing reduced insurance rates. Please write our nearest office for complete information on Horton elevated tanks.

## CHICAGO BRIDGE & IRON COMPANY

| | | | | | |
|---|---|---|---|---|---|
| Chicago | 2127 McCormick Bldg. | Philadelphia | 1616-1700 Walnut St. | San Francisco | 1033 Rialto Bldg. |
| New York | 3308-165 Broadway Bldg. | Boston | 1501 Consolidated Gas Bldg. | Houston | 918 Richmond Avenue |
| Cleveland | 2236 Rockefeller Bldg. | Birmingham | 1502 N. Fiftieth Street | Tulsa | 1625 Hunt Bldg. |
| Detroit | 1501 Lafayette Bldg. | Dallas | 1606 Praetorian Bldg. | Los Angeles | 1403 Wm. Fox Bldg. |

*Plants at* BIRMINGHAM, CHICAGO, and GREENVILLE, PA. *In Canada:* HORTON STEEL WORKS, LIMITED, FORT ERIE, ONT.

During August we hope you will remember to mention THE AMERICAN CITY.

# Water Rates and Treatments

SCHEDULE B REVISED JANUARY 2, 1940, KALAMAZOO, MICH.

| Size of meter | ⅝-in. | ¾-in. | 1-in. | 1½-in. | 2-in. | 3-in. | 4-in. | 6-in. | 8-in. |
|---|---|---|---|---|---|---|---|---|---|
| First 100 c.f. per mo.* | $ .33 | .48 | .73 | 1.23 | 2.08 | 3.73 | 6.73 | 13.38 | 25.08 |
| Next 3,900 c.f. per mo.* | .08 | .08 | .08 | .08 | .08 | .08 | .08 | .08 | .08 |
| Next 30,000 c.f. per mo.* | .06 | .06 | .06 | .06 | .06 | .06 | .06 | .06 | .06 |
| Next 466,000 c.f. per mo.* | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 | .03 |
| Over 500,000 c.f. per mo.* | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 | .02 |
| Minimum charge when no water is used per month | .25 | .40 | .65 | 1.15 | 2.00 | 3.65 | 6.65 | 13.30 | 25.00 |

* The charge is per 100 cubic feet.

## *New Water Rates for Kalamazoo Industries*

THE NEW WATER RATES for industrial plants at Kalamazoo, Mich., went into effect January 2, 1940. These rates consist of merely a service charge plus a water charge. The new schedule "B" available to industrial customers who use 100,000 cubic feet of water per quarter at a nearly continuous rate 24 hours a day, or who do not use water except for janitor or night watch requirements between 5:00 P. M. and 9:00 P. M., during June to September inclusive, have been revised and are now as given above.

## *Serious Water Fight Won by Chlorination*

ONE OF THE MANY INTERESTING water problems caused by the severe cold of the winter of 1939-40, when low water and ice raised such havoc with many supplies, comes to us from Ottumwa, Iowa. Ottumwa takes its raw water supply from the Des Moines River, about 125 miles, via the river, below the city of Des Moines, which has a population of 150,000 and which at that time was dumping all its raw sewage into the river. The extreme drought had reduced the river to a record-breaking low flow of about 30 cfs, into which Des Moines was discharging about 14 mgd of raw untreated sewage. Early in January, 1940, the entire river froze over solid, and a blanket of snow fell on the ice, forming a refrigerated closed conduit from the outlet of the Des Moines sewer to the intake of the Ottumwa water works.

Soon after the freeze, trouble began at Ottumwa with bad tastes and odors developing rapidly, as the raw water was practically 50 per cent sewage from which only the solids had settled. The threshold odor was about 600 as nearly as State Board of Health engineers could determine by the usual methods of testing.

Treatment of the raw water with pre-chlorination up to as much as 90 pounds of chlorine per million gallons was begun, followed by lime and soda softening, de-chlorination leaving around 4 ppm of residual chlorine, and then about 400 pounds per million gallons of activated carbon, followed by filtration. The results of this series of treatments were poor, as the strong tastes and odors persisted.

Ottumwa finally switched to superchlorination, applying slightly over 900 pounds of chlorine per million gallons, or 112 ppm, at which point the residual chlorine broke from a little over 50 ppm to about 9 ppm; then the lime and soda softening treatment was applied, and the water settled and was de-chlorinated with sodium bisulphite applied by a Proportioneers' pump. The resulting residual chlorine was between 6 and 7 ppm before dechlorination; after dechlorination, zero residual chlorine. Finally the water was filtered, giving a very good result with only a very slight woody taste. This treatment was continued until the ice melted, giving a higher flow in the river early in March. The required chlorine dose was gradually dropped to about 200 pounds of chlorine per million gallons, and dechlorinating with about 4 ppm sodium bi-sulphite to zero residual chlorine. The average water during the winter is about 4 mgd.

We are indebted to Horace A. Brown, Superintendent of Ottumwa Water Works, for the report on which this item is based.

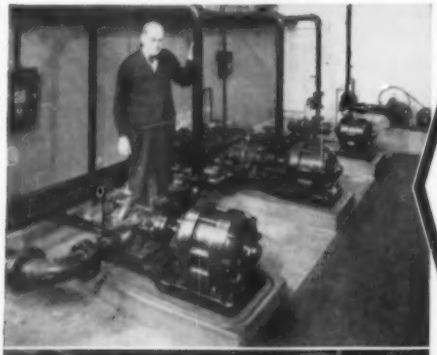
**SEPTEMBER 24-27, 1940**
**New England Water Works Association 49th Annual Convention in New York City.**
**See the World's Fair too!**

## *Hard and Softened Water —Their Effect in Service*

IN A BOOKLET describing the water-conditioning plant recently completed at Lansing, Mich., where the deep-well waters, which have a hardness of 464 ppm, are softened to a hardness of 85 ppm as delivered to the consumer, appears an interesting comparison of hard and conditioned water for various uses based on water of this hardness. We reproduce the comparison below:

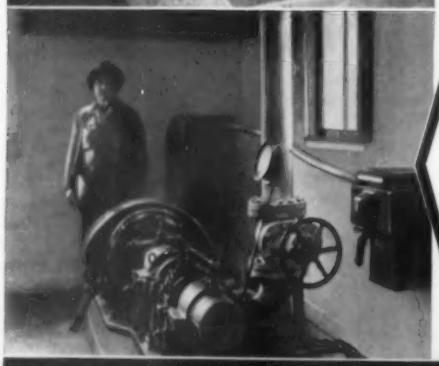
| USE | HARD WATER | CONDITIONED WATER |
|---|---|---|
| With soap | Forms soap curds and makes cleaning difficult. | Produces suds easily. |
| In washing dishes | Causes streaks on dishes and glasses. | Dishes can be just drained and rinsed clean. If rinsed with hot water, many pieces do not need to be touched with a towel. |
| In laundering | Wastes soap, discolors clothes, often necessitates extra-hard washing. | Saves 65 per cent of soap formerly used. Makes clothes soft, sweet and clean. Prolongs their life. |
| In washing woodwork, porcelain, etc. | Calls for hard scouring, harms finish. | Preserves luster. |
| In removing grease | Makes work difficult. | Tendency to cut grease. |
| In bathroom | Makes skin drawn, clogs the pores, preventing proper elimination of poisons on the skin. Leaves scum and stain on bathroom fixtures. | Keeps pores free. Makes it easy to keep bathroom fixtures clean. |
| In shampooing | Deposits soap curds in hair, dulling luster. | Makes hair clean and glistening. |
| In beauty culture | Makes it impossible to thoroughly cleanse skin. | Helps keep skin clean. |
| In shaving | Deposits on whiskers cause razor blade to be dulled. | Gives a fine lather, softens the beard. Makes shaving easy—makes blades last longer. |
| In water pipes | Scale chokes the flow of water. Makes faucets drip. | Keeps pipes free from scale. Faucets will stay tight longer and leak less. |
| In water heater | Deposits rock-like scale in coils and on tanks. Fuel is wasted. | Coils last longer, less fuel is consumed. |
| In steam boilers | Wastes fuel. Needs a longer time for steam to come up. | Saves fuel. Steams quickly. |
| In automobile radiators | Will eventually clog fine tubes, causing overheating, boiling away of water. | Keeps radiator in efficient condition. Keeps motor operating at proper temperature. |
| For ice cubes | Causes cloudy ice and leaves a deposit when ice melts. | Makes clearer ice. |
| For care of baby | Milk bottles get scummy—harder to clean. | Makes bottles glisten. |
| For hygienic cleanliness | Makes it hard to remove dirt and foreign matter. Prevents thorough cleaning. | Cleans thoroughly and easily. |

# NEW LOW-COST PUMPING MAKES NEWS!



**Saves $6,372 in Year!**
By replacing old pump equipment in Hastings, Michigan, with modern Allis-Chalmers Centrifugal Pumps, an average saving of $6,372 a year was made. City Engineer Bert Sparks inspects the pumps.

**Pays for Itself in 8 Months!**
Saving 48 brake horsepower every day, the new Allis-Chalmers Centrifugal Pump in this pumping plant paid for itself in eight months . . . is piling up further savings of approximately $1700 a year!



**1.7 KWH per 1000 Gallons!**
Pumping water for ten years at a power cost of only 1.7 KWH per 1,000 gallons, this Allis-Chalmers Centrifugal Pump has brought real savings to Hugo, Okla., as reported by Bill Stewart, waterworks superintendent.

**With Allis-Chalmers Centrifugal Pumps You Can Give Your Municipality Lower Pumping Rates . . . Plus Greater Pumping Dependability! Get the Facts, Today!**

IN HUNDREDS of municipalities, Allis-Chalmers Centrifugal Pumps are *making news*—by handling more gallons of water . . . at record-breaking low pumping costs!

As illustrated in the three typical case histories shown here, these pumps are proving what generous, full-measure construction can do when combined with husky, compact, efficient Allis-Chalmers pump design. It explains why sales of these pumps have been steadily climbing!

To assure yourself these same important savings in your municipality, get the full story of Allis-Chalmers Centrifugal Pumps. Call the pump engineer in the district office near you . . . or write Allis-Chalmers, Milwaukee!

A 1275

*Over 90 Years of Engineering Superiority Work for You When You Specify Allis-Chalmers!*

ALLIS-CHALMERS
MILWAUKEE · WISCONSIN

# The Public's Health

## *Some 1939 Health Laws Which Affect Cities*

In the April 19, 1940, Issue of *Public Health Reports* of the U. S. Public Health Service appeared an article on "Some State Legislation in 1939 Affecting Public Health." Among the items taken up are three which apply directly to cities.

A new Texas law prohibits the employment in any public eating or sleeping place, or place where food, drink, or candy is prepared or stored, of any person having an infectious or contagious disease. Such employees must present a physician's certificate every six months. Similar bills failed in five states.

A compulsory diphtheria immunization law for children up to five years of age was passed in North Carolina, the county health officer to administer the prophylactic free of charge if the parents or guardians are financially unable to pay. A New Jersey law authorizes any board of education to condition school attendance on proof of immunity to diphtheria. Such board may provide, free of cost, materials and services for the required immunization.

A New Jersey law requires local boards of education to determine the presence of tuberculosis in communicable form in the pupils under their jurisdiction. Any pupil found to have tuberculosis in a communicable stage must be excluded, and can be readmitted only when free from the disease in a communicable stage, when physically competent to engage in school activities, and when no longer a menace to the health of other pupils. Another law in New Jersey provides that, in conducting the examinations required by law, the medical inspector may require pupils to loosen, open, or remove their clothing above the waist, provided the parents or guardians are notified and the examination is conducted in their presence or in the presence of a nurse or teacher.

## *Rats Are Costly Pets*

In a Supplement to the *Public Health Reports* of the Public Health Administration, there is a very valuable discussion of the cost of harboring rats, and of methods of rat-proofing buildings.

The cost of feeding a rat is generally estimated at one-half cent per day, or nearly $2.00 per year. Assuming that the number of rats in the United States equals that of the human population, the cost of feeding these dangerour pests amounts to approximately $250,000,000 per year. As the value of material destroyed or damaged by rats in addition to what they actually eat is estimated to be ten times this amount, we find that the annual cost of maintaining our normal rat population reaches the staggering sum of $2,500,000,000. When considering that, in addition to enormous loss, there is a grave public health problem involved, the importance and the magnitude of the task of permanent control of rat life, both on land and on sea, can be better understood and appreciated. Typhus fever has already appeared in a number of southern cities and has increased rapidly, while rat-proofing measures have not been adequate.

The fundamental factors in rat control are: (1) destruction of rat harborage; (2) change in public attitude relative to rat control and harborage; (3) legislative action with faithful compliance; (4) technical aids, which include employment of a design which eliminates unnecessary enclosed spaces; or, if this is not possible, the use of material impervious to rat gnawing, and its installation in a rat-proof manner. The construction materials which should be used to keep out rats are concrete 4 inches thick, using a rich mixture with clean, sharp aggregate, bricks with a hard surface and free from defects, metal, such as galvanized iron sheets, No. 18 U. S. gage, and a maximum width of 3/8-inch in louvres.

## *Clean Premises Insured by Inspections*

Since 1914 the City of Palo Alto, Calif., has regularly inspected all premises within the city to insure compliance with the sanitary regulations. This has resulted in a marked freedom from unsightly collections of garbage and refuse and has undoubtedly contributed materially to Palo Alto's reputation as a clean city. During 1939 a total of 14,599 sanitary inspections were made. A total of 5,858 premises were listed on the inspectors' records, each of which was inspected one or more times during the year. Of the premises inspected, 5,416, or 92.4 per cent, were rated as clean, 344, or 5.9 per cent, were rated as fair, and 99, or 1.7 per cent, were rated as dirty. The percentage of clean yards has been kept consistently in the neighborhood of 90 in recent years.

According to the 1939 Annual Report of the Health Department, the system of inspections followed and the compulsory enforcement of the garbage-removal regulation have kept the rat population of the city at a minimum. In addition to this, the Health Department is prepared to assist in rodent control by furnishing materials and advice. Powdered red squill, with directions for use, is available for free distribution, 119 1-ounce packages having been furnished during 1939.

## *Effect of Sanitation on "Causes of Death"*

A Recent Publication of the Bureau of the Census entitled "The Killers" gives the number and per cent of deaths from the principal causes. Diseases of the heart account for 23.9 per cent of deaths among all ages; influenza and pneumonia for 10.2 per cent; cancers and other malignant tumors for 10 per cent; sixth on the list is tuberculosis, 4.8 per cent; and such diseases as typhoid fever and smallpox are lumped under the heading "other causes" with numerous other minor causes of death.

A study of these figures brings great satisfaction to sanitarians for the work of sanitary engineers in improving the water supplies of our cities, the work of health departments in examining and requiring improvements in our milk supplies, and the almost universal requirement of vaccination as a protection against smallpox, which has relegated this disease to the catch-all "other causes."

The position of tuberculosis, accounting for less than one-twentieth of all deaths, is encouraging; as it shows the effect of the program of examination in secondary schools and the tremendous publicity given to the available means of stamping out this insidious disease. The fact that diseases of the heart are the major cause of death shows the effect of the tempo of American life and also the fact that with the elimination of contagious diseases as important causes of death, the wearing-out of the human body now becomes the principal cause of death.

**A. P. H. A.**
*October 8-11, 1940, Detroit, Mich.*

# FATHER AND SON

## —the Symons . . . two generations of

# SANITARY ENGINEERS

*Says George E. Symons of his father,*

*"To condense into one page the professional life of a man like Martin, as all his men call him, is unfair. . A period of service like his deserves a volume. . He takes his job seriously, believes firmly in the credo of the public utilities servant, 'It's got to go' . . Packing men ask his advice, pump men seek his counsel on valves, professors have brought classes to see how he wets coal to make it burn better. He can still look at an alum floc and tell how well the water will filter. He likes to tell the story of how No. 1 High Service Pump was started the day I was born, and how the filter plant began operations when I was forty days old . . (His) plant is the most economical in the State . . 'Martin' is the dean of operators in Illinois, with service since 1895."*

*(upper)*
*Martin M. Symons, Chief Engineer, Interstate Water Co., Danville, Ill.*

*(lower)*
*George E. Symons, M.S., Ph.D., Chairman, Committee on Sewage Research, New York State Sewage Works Association.*

● The Symons first became acquainted with the virtues of Mathieson Chlorine in 1916 when it was introduced in the Danville plant, of which Martin M. Symons has been Chief Engineer since 1909. Since that time, both father and son have used Mathieson Chlorine throughout their long careers in sanitary work.

The popularity of Mathieson Chlorine with sanitary engineers all over the country is due to its purity and dependability, and the excellent service record of Mathieson's trouble-free cylinders and valves.

Popular, too, is Mathieson HTH, a dry, free-flowing chlorine carrier containing more than 70% available chlorine. Many sanitary engineers keep it on hand at all times for sterilizing new or recently repaired mains and for emergencies requiring a mobile, high test chlorine carrier.

**THE Mathieson Alkali Works (INC)**

60 EAST 42ND STREET, NEW YORK, N. Y.

LIQUID CHLORINE . . . HTH . . . SODA ASH . . . CAUSTIC SODA . . . BLEACHING POWDER . . . BICARBONATE OF SODA . . . AMMONIA, ANHYDROUS and AQUA . . . PH-PLUS (FUSED ALKALI) . . . DRY ICE . . . CARBONIC GAS

Do you mention THE AMERICAN CITY? Please do.

# Street Work Near and Far

## *City-Owned Tractor a Jack of All Trades*

THE CITY OF SALMON, IDAHO, through Virgil Harris, Superintendent of Equipment, has made its D-4 diesel tractor a veritable jack-of-all-trades through intelligent application of a single piece of machinery to many of the city's problems. The accompanying illustration shows the tractor at work using its belt-pulley to saw sandstone for building a new city hall, library and jail.

Other jobs which have been tackled and performed successfully since this D-4 was purchased in July, 1937, are: backfilling water and sewer trenches, clearing out for new streets, windrowing dirt for sub-fills and surfacing material, snow removal, excavating for basements under several privately constructed buildings, land leveling, road grading, scraper work, plowing, rooting, handling rock at the city stone quarry, and even moving whole buildings.

*The D4 owned by Salmon City, Idaho, Sawing Sandstone for the new City Hall at a Cost of about one-half that of a 25-hp Electric Motor*

## *Street Paving in Bombay, India*

AN INTERESTING SERIES OF PHOTOGRAPHS, including the accompanying illustration, have been received in the United States from Featherstone, Cozens & Co., representative of Littleford Bros. in Bombay, India. Some of the photographs show the method of building a flooring for a bridge. Metal sections of troughing are filled with a wood aggregate impregnated with a bituminous compound. After the wood aggregate is placed in the troughs and tamped into position by hand, a seal coat of bituminous material is applied to fill up the voids.

*Operating a Hand Spray on Street Paving in Bombay, India*

After this operation, the metal troughs are moved and placed in position on the bridge.

Of even more interest is the application of the American bituminous heating kettle with its hand-operated pump and hand spray to street work. According to the report from Bombay: "The gentleman operating the spray is not dressed for a Bhutanese Devil Dance, but has protected his legs from hot spots of asphalt by wrapping them in torn-up gunny bags, a uniform which the contractor is not compelled to supply under any rules and regulations, but which is very effective."

We are indebted to Littleford Bros., Cincinnati, Ohio, for the illustration.

*An International I-12 Tractor Owned by the City of Ann Arbor, Mich., and Used with a Schramm Compressor by the Street Department for Removing Old Pavement for Patching*

**A. P. W. A. Convention**
*Detroit, Mich., Sept. 30-Oct. 2*

# THE DIAPHONE

**A compressed air-operated public alarm with a distinctive and penetrating tone.**

THE characteristics of the ideal public alarm necessarily include great sound producing power, carrying capacity, sound penetration, distinctive tone, ability to sound effectively coded signals, positive operation under all conditions, and reserve capacity. All of these qualifications are possessed by the Diaphone Compressed Air System.

Instances of electric power cessation . . sometimes for days at a time . . caused by storms, high wind, and sleet are not infrequent. The sleet storm in 1935 that crippled 75% of Georgia power lines, the hurricane of 1938 which left scores of New England communities in darkness for days, and the sleet storm of March, 1940, which, within its path in Connecticut and adjoining states, inflicted even more damage than the hurricane, are recent occasions when many communities were without electric power for publicly announcing alarms of fire.

Diaphone compressed air alarm outfits are self-contained units which constantly maintain by means of automatically controlled compressors reserve capacity to sound a number of alarms. The Diaphone is the ideal public alarm. Write for catalog and estimates.

## THE GAMEWELL COMPANY

NEWTON UPPER FALLS MASSACHUSETTS

# Public Safety

## Full Modern Equipment For All Police Forces

PRODUCTION OF 1,000 AIRPLANES and 1,000 tanks per day, a two-ocean navy, all men of 18 to 64 conscripted, arms production to equip 1,000,000 men per month?

What do the cities say?

One thing is certain: We already have police forces, we know how they ought to be equipped, and the equipment is to be had for the purchase order.

Governor Herbert H. Lehman specifies some of this equipment in announcing on July 24 his plan for coordinating all police agencies in New York State. These agencies, unlike the National Guard, are always on the job in 1,600 police jurisdictions. There are seven mobilization districts, and the first job of the Coordinator of each district is to tabulate the number and location of all the following facilities:

a. All police personnel.
b. Transportation facilities, with specification of the passenger capacity of each vehicle. These facilities include patrol cars, motorcycles and side cars, squad cars, patrol wagons and prison vans, ambulances, sound cars, trucks, horses, emergency vehicles and airplanes.
c. Radio communication facilities with a specification of the name, frequency and approximate range of each. These facilities include police-radio stations, commercial broadcast stations, Federal Government radio stations (such as Coast Guard and Border Patrol), portable radio transmitters, and police vehicles with radio receivers.
d. Equipment, such as rifles, shotguns, autorifles, machine guns, grenades, gas grenades, gas guns ,other gas ammunition, gas masks and portable electric generators.
e. Detention facilities, such as jails, lockups and emergency detention facilities.

The maximum efficiency of such a plan should certainly result from each of the individual agencies being so thoroughly supplied with modern standard equipment that the Governor could concentrate full thought and action on leadership and practical procedure. In all these defense plans it is intelligent, energetic leadership that is needed. Consequently, the most valuable cooperation on the part of the municipal police forces would appear to consist in bringing the various types of equipment to a reasonably uniform standard.

There should be a sufficient number of new motorcycles, servi-cars, automobiles, trucks, portable sound apparatus, airplanes, modern two-way police-radio systems; full rescue equipment, including portable pumps, generators, winches, floodlights, gas masks and resuscitation apparatus; suitable arms; modern jail equipment.

Governor Lehman wants this plan to be put into effect without "superseding or infringing upon the normal processes of the established agencies of law enforcement." This obviously necessitates that each police force bring its personnel and equipment to the highest degree of efficiency of which its chief and the mayor and council and other officials of that municipality are capable.

Incidentally, one of the above items is motorcycles. This is certainly the vehicle par excellence for handling crowds. At the July 23 meeting of the New York Association of Chiefs of Police, Mayor La Guardia emphasized the need for developing a means of quietus for the new technique for creating panics, such as is said to have bloomed in Belgium. First there is a noise, then somebody starts running and screaming, and then loading a cart with household goods, and taking to the woods. The whole thing is infectious, and soon the road is jammed and troops are impeded. The motorcycle can penetrate almost any congestion.

The Governor's order is already effective. Other states are proceeding on similar lines. It is up to the municipalities to do their part and do it promptly.

## Municipal Sky Patrolmen

THE NEW YORK CITY POLICE DEPARTMENT recently purchased for use by the Emergency Service Division two new airplanes which daily patrol the skies and especially at week ends survey and report on the streets and highways in and around the metropolis. The seaplane is of special service in aiding drowning persons, and ships in distress, and in locating missing boats.

*New York P. D.'s Seaplane*

The two planes—a seaplane and a landplane—were furnished by the Stinson Aircraft Division of the Aviation Manufacturing Corporation. Each is powered by a 450-hp Wright whirlwind motor with top speed of 175 mph, is 27 feet long, wing-spread 41 feet, and "easy to handle." An unusual feature is their equipment for ambulance service, with first-aid kits, stretchers, flares, asbestos suits, and doors larger than standard. They carry a Fairchild aerial camera for photographing sections of the city.

Based at Floyd Bennett Field, they are serviced by six mechanics and avigated by six pilots trained for instrument (blind) flying, top rating. The pilots also carry third-class radio-operator licenses, for the planes are equipped with two-way radio covering weather, police, aircraft, and ultra-high-frequency bands, the last for talking to radio cars, police launches and other planes in flight.

New York City police have used airplanes since 1929, when private donations provided six, all now obsolete. The new planes were purchased in the 1940 police budget.

*New York P. D.'s Planes and Cars Cooperate*

# MAKING *Tomorrow's Improvements* POSSIBLE TODAY

WHERE are the citizens, public officials and planning boards who haven't envisioned big things for their town, city, county or state? . . . more improved roads and streets—new water supply — sewerage plants — recreation parks and playgrounds. Yet how many such worthy projects must wait because of excessive cost?

They need not be so far off as some people think! For today there is available modern, versatile, big-capacity equipment that dwarfs the costs of yesterday and almost overnight can turn a lane into a highway, a swamp into a lake, a rocky wasteland into a park.

That equipment is "Caterpillar" Diesel Tractors and Motor Graders. Rugged, powerful, versatile, easy and truly inexpensive to operate, these machines can "move mountains"—excavate, haul, spread, level huge quantities of dirt, rock, surfacing materials—handle a wide variety of jobs which ordinarily require specialized machines or slow, old-fashioned methods.

If your impressions or studies of construction and road-maintenance equipment are more than two years old, you'll find many advancements—for scope, efficiency and economy—embodied in "Caterpillar" Diesels.

**CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS**

# CATERPILLAR

REG. U.S. PAT. OFF.

TRACK-TYPE TRACTORS • ROAD MACHINERY
DIESEL ENGINES AND ELECTRIC SETS

***NEW DEVELOPMENT GETS NEW STREET (top)*** — **For Fayetteville, N. C., this "Caterpillar" Diesel No. 112 Motor Grader is providing an improved street for a new section—and making loyal residents proud of their city management.**

***A WASTELAND BECOMES A PARK (bottom)*** — **For the City of Upland, California, this "Caterpillar" Diesel D4 Tractor with a LaPlant-Choate bulldozer is shown carving a waterway through a new park being constructed out of 47 acres of rocky wasteland. All channel building, clearing, grading, driveway making, etc., is handled with this outfit and a "Caterpillar" Diesel Motor Grader.**

Vol. LV, No. 8 The American City AUGUST, 1940

*Excelsior, Minn., Has an Unusually Attractive and Effective*

# Small-Town Plant for Sewage Treatment

THE new sewage works at Excelsior includes primary and secondary treatment with final sand filtration in summer and chlorination of the effluent before discharge into a small stream leading to the popular Lake Minnetonka. This community of 1,200 population is situated on the shores of one of the many lakes in the Minneapolis area, only 20 miles by trunk highway from the larger of the twin cities of Minneapolis and St. Paul. Because the lake is used extensively for bathing, the standards for the plant effluent were set unusually high.

Not satisfied with building merely an efficient plant, the community set about securing an attractive one which would be of interest to the motorists on Minnesota Route 7, an east-west artery. The pump building, or control house, is of red brick with large panel windows of glass blocks, a cork sound-absorbent ceiling, yellow vitrified-tile walls inside, and concrete floors heavily waxed for smoothness and ease of cleaning. The whole plant, which has been in continuous operation since December, 1938, is maintained in a constant spotless condition, showing an unusual interest on the part of the city administration and the superintendent.

## Sewerage

Despite the small size of Excelsior, it is necessary to have two lift stations to deliver the sewage of sections of the community to the main trunk sewer. One of these lift stations contains two Yeomans pumps of 50-gpm capacity each, and the other a single Smith & Blackburn 50-gpm ejector. As there are no industries in town, a straight domestic sewage is delivered to the plant by a 12-inch vitrified-clay sewer. The plant itself is designed for an average load of 70

*Entrance to the Dome-Roofed Trickling Filter. Note the Ornamental Lighting and the Bronze Tablet Describing the Function of the Filter*

gpm, or 100,000 gallons, per day, with short maximum peak flows of 210 gpm. This capacity will take care of an ultimate population of 1,500.

## Comminutor and Clarifier

The sewage enters the pump house at a mezzanine level midway between the ground floor and the basement or control room. The raw sewage enters at the corner of the clarifier room, flowing through an 8-inch Chicago Comminutor, which is operated 40 minutes of each hour under control of a time clock. Sewage then flows direct to a 16-foot diameter Dorr clarifier with a sidewater depth of 6 feet 11 inches, and detention period of 2 hours and 10 minutes at normal flow. The sludge is moved to the center of the clarifier by the usual sludge plows at the bottom, which are operated for 20 minutes every hour by a time clock. A grease skimmer on the surface delivers the grease to an overflow box, from which it is pumped to the digester. Tools for removing grease or sludge or for handling any of the numerous operations are carried on a rack on the clarifier bridge. The clarifier room is heated by a Grinnell unit hot water heater, and is ventilated by a two-speed fan blowing directly to the outside. The sewage in the clarifier enters at the center and flows radially to the circumferential weir.

## Trickling Filter

From the clarifier the sewage flows into an 815-gallon-capacity wet well, from which it is pumped alternately by one of two Yeomans 50-gpm pumps with Howell 3-hp motors delivering to the center well of the four-armed rotary distributor of the trickling filter 27 feet above the elevation of the pump. The trickling filter building is 186 feet distant from the control house at the top of the slope on which the entire treatment plant is constructed. It is housed in a circular brick building with an attractive entrance and, like all other build-

*The Covered Sludge Bed and Pump House, with Underground Secondary Settling Tanks in Foreground, as Seen at —22° F., from the Trickling Filter*

ings and processes used at the plant, its operation is described concisely on a bronze plate on the wall beside the doorway leading into the filter. The trickling filter is 54 feet inside diameter, containing 2,300 square feet of surface area, and is roofed by a conical concrete dome the apex of which terminates in a ventilating opening equipped with an electrically driven exhaust fan. The rise of the dome is only 8 feet, or about one-seventh of the span, and the roof is only 3½ inches thick. It was built by the Hewett method with the large circumferential thrust due to the small ratio between the rise and span taken care of by seven 1⅛-inch circumferential steel rods placed about the dome haunch and pre-stressed to about 18,000 pounds per square inch after the concrete had been poured. The rods were then covered by a protective coating of concrete 3 inches thick, which hides them and completes the architectural detail of the dome ring. The filtering medium is gravel, varying in size from 1½ to 3-inch, but mostly between 1½ to 2½ inches screen size, and is 8 feet deep from the surface to the underdrains. At the time of our visit, when the temperature was about 12 degrees, the inner walls of the building were lined with a thick layer of frost. The sewage is spread uniformly over the surface of the bed by the four-arm Simplex Yeomans rotary distributor.

## Final Treatment

From the trickling filter the sewage flows to the rectangular final settling tank, which is 7 feet 9 inches wide and has an area of 220 square feet. Including the hopper, it has a capacity of 14,700 gallons. The sludge is drained from the hopper periodically to the clarifier, and there is no collection mechanism for the sludge in this final settling tank, which has a detention period of 2¼ hours.

From the settling tanks the sewage flows to a dosing tank, which is equipped with four PFT syphons which ultimately deliver the sewage in summer to each one of the four 2,500-square-foot filter beds. These filter beds are built with tile underdrains having 3 feet of gravel and sand around and over the tile. The filter-bed effluent, which contains a minimum of suspended matter, flows to the chlorination tank and thence to a meandering stream in a swamp, and finally reaches Lake Minnetonka.

The Wallace & Tiernan pressure-type MSPO chlorinator is located on the ground floor of the pump house. The chlorine solution flows through a ½-inch diameter pipe direct to the chlorination tank, about 200 feet distance. The 150-pound cylinders of Monsanto liquid chlorine are placed on the platform of a Fairbanks beam scale set flush with the floor to minimize the labor requirements to put the cylinders in place.

## Sludge Digestion and Disposal

The sludge from the clarifier is pumped at regular intervals, controlled by a time clock, to the 450-cubic-foot capacity digester, 20 feet in diameter and 20 feet deep, located under ground for greater insulation and between the pump house and the covered sludge beds. The designed capacity of the digester is 3 cubic feet per capita.

Digested sludge is pumped from the digester by the same Yeomans-Carter sludge pump to a glass-covered sludge bed which has a total area of 660 square feet. These beds consist of 12 inches of sand and 6 inches of gravel over the underdrains. The underdrains are connected with the incoming sewer lines to give the liquor full treatment.

## The Control Room

The control room is the heart of the plant and is located in the basement of the pump house. It is reached by a wide staircase from the ground floor and also by a short flight of stairs from the clarifier mezzanine level. This room contains a small workbench for odd jobs and the storage of tools, a Gar Wood oil heater for heating the water for the unit heaters throughout the building, and also for heating the water for the digester. The hot water is circulated by two Thrush circulating pumps, one for the digester circuit and the other for the building circuit. The digester circuit is equipped with an aquastat to control the temperature of the digester water. At the time of our visit when the outside temperature was 12 degrees, the water being delivered to the digester had a temperature of 126 degrees and the return temperature was 118 degrees. A Varec flame trap and check-valve are installed on the digester-gas line leading to an American Gas Products gas burner which, when gas production is sufficient, is used to heat the building but not to heat the digester water. The Gar Wood heater is maintained in commission for that purpose at all times. In addition to the flame traps, there are an Emco gas meter and a condensate tank on the gas line from the digester to the control room.

A single Yeomans-Carter sludge pump, driven by a 2-hp Howell motor, is so piped and valved with eight ACF lubricated plug-valves

that it can perform numerous operations such as: (1) pump clarifier sludge to the digester; (2) pump clarifier scum to the digester; (3) circulate sludge in the digester; (4) drain sludge from the line to the drying beds back to the wet pit to clear the lines; (5) pump digested sludge to the drying beds; (6) pump sludge to the screen pits; (7) dewater a square sump in the floor of the control room.

The two Yeomans 50-gpm sewage pumps are so installed that they may deliver the sewage, as is usually done, direct to the trickling filter or may by-pass it to the chlorination tank, or direct to the lake. The risers from the two pumps and the common discharge line form an inverted "U," at the top center of which is a drain back to the wet pit. Check valves are provided in each riser so that either or both pumps may be used. There is also a third connection to the wet well for another pump when needed.

Also located in the control room is a receiving tank for chlorinator water. City water is delivered to this open tank under the control of a float valve so as to prevent any possible cross-connection between a line connected with sewage in any way and the municipal water supply. A 2-inch Westco centrifugal pump with a Century motor takes suction from the receiving tank and maintains a 50-pound pressure in a closed service tank which delivers the steady flow of water to the chlorinator for the solution feed.

All the pipes in the building are painted key colors as follows: red for hot water; blue for cold water; orange for sludge gas; aluminum for the chlorine line; and black for sludge lines. A small low-head storeroom under the mezzanine stairway is used to keep all unsightly stores away from the public's gaze, and aids in maintaining the neat appearance of a well-designed plant. Outside the storeroom is the main electric control board for the entire plant, protected by steel doors. The control board contains three time clocks, for the clarifier, the sludge pump and the comminutor, and a complete set of push-button switches for every piece of equipment in the plant, all well labeled so that it is practically impossible to make a mistake and start the wrong piece of equipment. A panel of pilot lights outside the control board shows at all times what equipment is operating, whether manually or automatically controlled. Removable and reversible fuse boxes are used on all circuits, protecting the operator when it is necessary to insert a new fuse, and also by reversing a fuse box the circuit is automatically cut out.

A 1½-inch pipe leading from the sludge gas line in the control room and equipped with a flame trap near the roof level goes out through the top of the building, liberating all excess gas. The gas is not burned in the open air. On the ground floor is a small laboratory table with running water, and on the wall is a chemical cabinet for the basic solutions needed to test the operation of the plant, particularly for residual chlorine. Standard Imhoff flasks are used to test the settled solids in various parts of the plant.

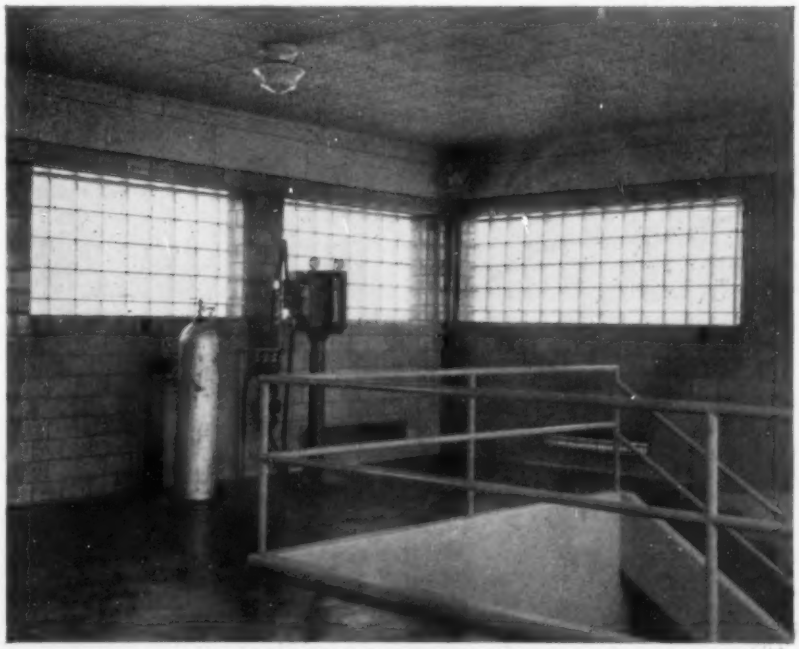
## Odor Control

There are various provisions in the plant design to facilitate odor control, such as prechlorination of the raw sewage and of the secondary settling tank effluent, numerous ventilating fans, the burning of digester gas in a space heater and the covering of the sludge bed. These were all necessary because of the proximity of the plant to the intersection of two much-traveled highways. This location is the only one reasonably available in the village. The architectural and landscape features were stressed for the same reason.

The new sewage-treatment plant at Excelsior was placed in operation in December, 1938, and except for some trouble at first with foaming in the digester, due, perhaps, to its operation without heating during the summer months and to the cooling effect of the ground water which rises to a considerable height on the outside of the tank, the plant has operated with unusual success under the care of Tom Knott, Superintendent. The plant was designed by Druar & Milinowski, consulting engineers of St. Paul, Minn.

**Population Figures—1940**

**For alphabetical list of the new census figures for 273 cities of over 25,000 population, see page 5.**



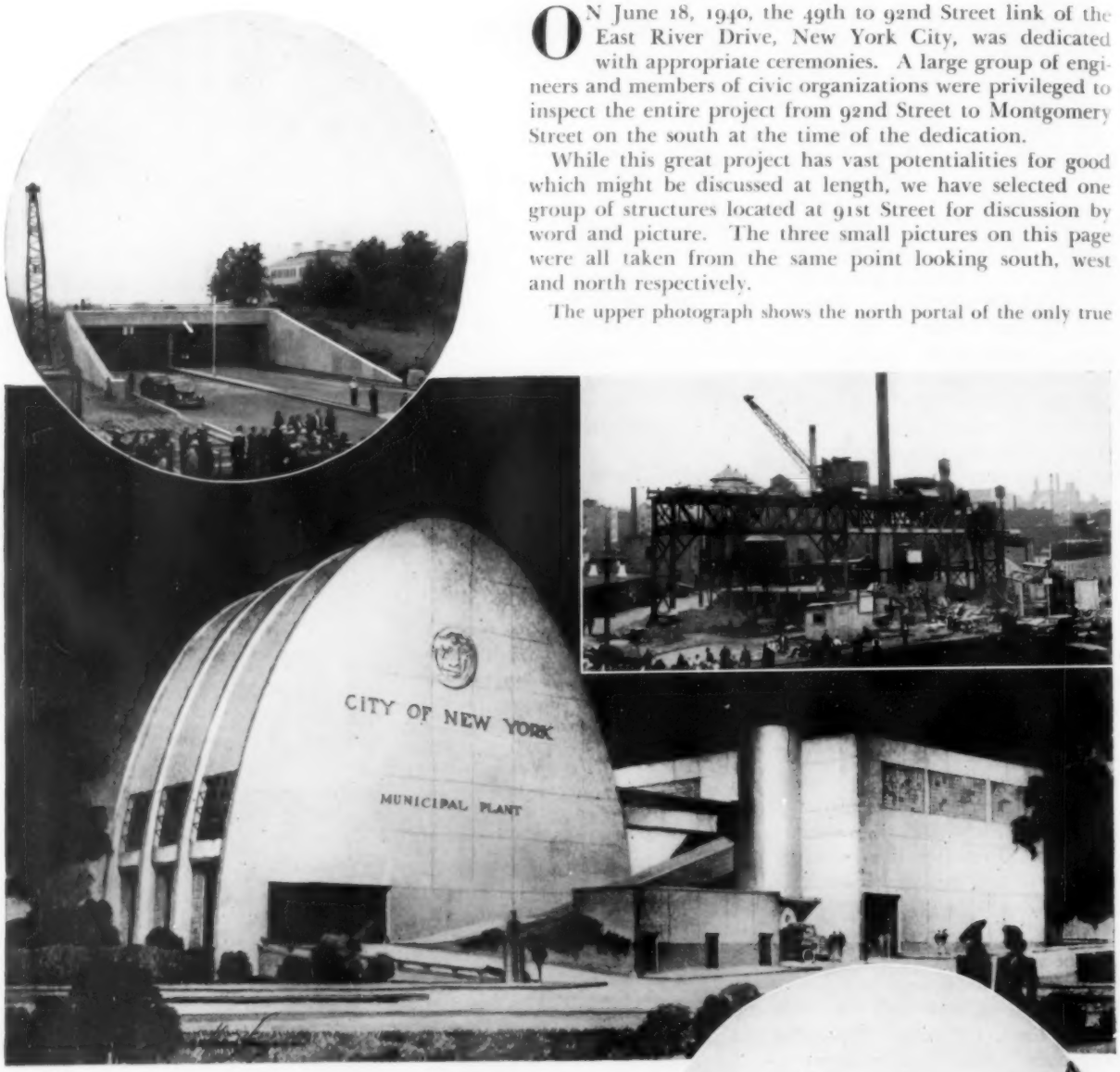
*First Floor of the Excelsior, Minn., Sewage-Works Pump Building, Showing the Chlorinator Ventilators, Stairs to the Pump Room and Glass-Block Windows*

# Utility and Civic Planning in New York City

ON June 18, 1940, the 49th to 92nd Street link of the East River Drive, New York City, was dedicated with appropriate ceremonies. A large group of engineers and members of civic organizations were privileged to inspect the entire project from 92nd Street to Montgomery Street on the south at the time of the dedication.

While this great project has vast potentialities for good which might be discussed at length, we have selected one group of structures located at 91st Street for discussion by word and picture. The three small pictures on this page were all taken from the same point looking south, west and north respectively.

The upper photograph shows the north portal of the only true




DESIGN BY ELY JACQUES KAHN, ARCHITECT, FROM PLANS BY CITY ENGINEERS

tunnel on the East River Drive, which preserves the beautiful lawn of the historic Gracie Mansion. This tunnel is artificially lighted and automatically ventilated, and is 420 feet long. The middle inset is the old Borough of Manhattan Municipal Asphalt Plant, which is obsolete, dirty and expensive to operate. It is to be replaced by a modern plant now under design, to be housed in the attractive structure depicted in the center drawing. The lower photograph is of the street frame of the new Department of Sanitation ash dump, which is reached by a concrete ramp crossing the approach to the East River Drive at 92nd Street. The design and operation of this dustless dump was described and illustrated in THE AMERICAN CITY, March, 1940, page 13.

The effective and economical methods of land acquisition adopted for this East River Drive Project were described by Stanley M. Isaacs, President of the Borough of Manhattan, in the September, 1939, issue.

# Tax-Abandoned Land: What to Do?

*Introduction and Conclusions of "A Program for the Use of Tax-Abandoned Land," Presented at the National Conference on Planning, Held in San Francisco, July, 1940*

By Harold S. Buttenheim
Editor, The American City

BY claiming land, the lucky among our pioneer forefathers acquired individual wealth; by reclaiming either the land or its socially created income must their successors—lucky and unlucky—help to make community well-being more prevalent and permanent.

Throughout the era of America'a first settlement the land-gambler's survival may not have been an unmixed evil. But with the end of that era his failure to become extinct or fully domesticated was an oversight which the era of America's resettlement must find means to correct.

For it is into an era of resettlement and reclamation that we are now entering. This era will involve, in the decades immediately ahead, not only the conservation and redevelopment of vast rural regions, but the rebuilding of large areas in most American cities. To fell the trees in the primeval forests was the task of our colonial pioneers. To fell the tenements and the shacks in our obsolete urban jungles is the task of their descendants.

To the task of the forest-clearer the lure of free land was a potent stimulus. To the task of the slum-clearer the lure of increased public or cooperative ownership of land, combined with a rational tax system, might be equally potent. In the 1940's our municipal and county governments will be short-sighted indeed if they fail to pick up bargains in their own tax-delinquent real estate and to use such acquisitions in the public interest, rather than to allow the old game to continue of the buying-up and subsequent exploitation of distressed properties by land-gamblers.

## Two Major Questions

In an effort to secure some up-to-date information for this paper, several planners, tax officials, and others were asked for data as to:

1. The best and worst features of existing state laws relating to the public acquisition of tax-delinquent land and the powers of local governments to use, lease or sell such land.

2. Present practice or needed improvement of method in bringing such land into public use or restoring it to a taxpaying status.

[Sixteen replies were received. Excerpts from these comprise the body of the paper as presented at the San Francisco meeting.]*

* The full paper is obtainable from the American Society of Planning Officials, 1313 East 60th Street, Chicago, Ill. The statements quoted are from:

Benjamin H. Kizer, Chairman, Washington State Planning Council
T. S. Hedges, Commissioner, Washington State Tax Commission
R. E. Riley, Commissioner of Finance, City of Portland, Ore.
L. Deming Tilton, Administrative Officer, California State Planning Board
L. A. Henry, Engineer-Director, Arkansas State Planning Board
A. B. Horwitz, City Planning Engineer of Duluth, Minn.
Howard M. Hall, Assistant County Attorney, Des Moines, Iowa
Charles B. Bennett, City Planner, Milwaukee, Wis.
Arthur M. Werba, Supervisor of the Division of Tax Enforcement, Milwaukee, Wis.
Clarence W. Lock, Executive Secretary, Michigan State Land Board
H. G. Crow, City Manager, St. Joseph, Mich.
John T. Howard, Technical Officer, Regional Association of Cleveland, Ohio
Sergei N. Grimm, Executive Director, Syracuse [N. Y.] Housing Authority
Charles L. Curran, Attorney in Charge, Bureau of Tax Lien Liquidation, Yonkers, N. Y.
Hugh R. Pomeroy, Director, Virginia State Planning Board
H. C. Loeffler, Secretary, Boston Municipal Research Bureau

## Conclusions and Recommendations

1. In a few states—notably New York, Michigan, Ohio, and Arkansas, in 1939, and California in 1940—legislation has recently been enacted for more simple, speedy and less costly procedure in the public acquisition of tax-abandoned land, and for conserving the public interest in the future disposition and use of such land. Practical experience under these laws will doubtless suggest further refinements in the states mentioned and offer helpful ideas for other states, such as Illinois, where, to quote Walter H. Blucher, "the laws are so complicated that nobody knows when property becomes tax-delinquent or what kind of title a purchaser can obtain."

2. There is a widespread and understandable desire on the part of municipal and county governments to get tax-foreclosed property back on the tax rolls. In few places, however, is adequate consideration given to the extent to which such property ought to be retained permanently in public ownership.

3. Planning boards in some states have given special study to problems involved in the excess subdivision of land and in tax-delinquency, and to the best uses to which increases in the public domain, resulting therefrom, could be put. Such studies might well be made a major activity of all state and local planning boards. Prior to foreclosure of tax-delinquent properties, it would seem advisable that they be mapped by the planning board or the municipal real estate office, if any, and charted for their best potential use—whether for retention for specific public purposes or for municipal land reserves, or for sale to private developers, or exchange for other land of greater public usefulness.

4. When public bodies sell tax-abandoned land, too little thought is usually given to such questions as (a) whether the sales price is not too low; (b) whether by thus dumping property on the market other real estate values in the city or county will not be needlessly depressed; and (c) whether the property is likely to stay sold or soon again to become tax-delinquent.

5. A comprehensive approach to problems of tax-delinquency would concern itself not only with what to do when land has become tax-abandoned, but with methods of making tax-delinquency less prevalent in future. The remedies here would include more effective control than is generally practiced over land subdivision and land use, thus discourag-

ing settlement in either rural or urban areas which would involve needlessly expensive governmental services. In most cities legislation is needed to prohibit the sale of land in any new subdivision unless the platter has paid in advance the cost of installing all utilities and also paving, curbing and sidewalk, if needed.

6. Such a comprehensive approach would also involve less inequity in real estate assessments, more efficient methods of tax-collection (including monthly or quarterly installment payments), and a re-study of our American system of real estate taxation. The result might be the gradual adoption, under a graded tax plan, of lower rates on improvements, thus encouraging new building and the modernizing of existing structures, instead of penalizing such improvements as at present.

7. In considering possible public uses of tax-abandoned land, thought ought to be given to the need for so rebuilding our cities as to enable them to compete more efficiently than at present with the suburban trend which is everywhere evident. This would involve: larger park and playground areas; much more off-street parking space than most municipalities possess; street widenings; and in many cases the demolition and replanning of slums and blighted areas. For such uses municipal land reserves, made up partly of tax-abandoned land, would be very useful. Pending decision as to ultimate use, land reserves might be made temporary sources of public revenue by being leased—say for five years under competitive bidding—for private recreation, gardening, parking lots, or other purposes.

8. Since all municipalities own some public land and many are being increasingly forced into the real estate business, the establishment, in every large city at least, of an efficient public real estate office is to be recommended. Included in the powers of such an office might be sale for private use on a cash or credit basis; and the exchange, under proper restrictions, of tax-forfeited parcels for privately-owned parcels, as suggested by Mr. Horwitz, to facilitate the enlargement of publicly-owned areas and the vacation of premature subdivisions. I share also Mr. Kizer's belief, already quoted, that if marginal lands were retired from private use, the value of lands remaining in private ownership would advance in value, with a consequent increase of tax revenues.

9. The laws of many states need amendment, not only to safeguard the public interest in tax-delinquent land, but to prevent the hardships now often resulting to private owners, temporarily embarrassed financially, who suffer unjust losses at the hands of speculators in tax liens.

10. Finally, this whole problem needs much more thorough compilation of data and more definite proposals for remedies than have been possible in this study, to which the present compiler has been able to devote only a few occasional hours in the midst of other pressing duties. I am glad to learn from Carl H. Chatters and A. M. Hillhouse, of the Municipal Finance Officers' Association, that they are now working on a quite comprehensive monograph dealing with the collection of delinquent taxes and the management or disposition of tax-reverted properties. As soon as this monograph and the proceedings of our San Francisco Conference are published, I believe that the four organizations affiliated with the National Conference on Planning could render an important public service by appointing a joint committee to study this whole problem of tax-abandoned land and to recommend action thereon to state and local planning boards. Merely worrying about the problem will not produce the remedies so urgently needed.

# Efficient Cities in National Defense

DURING the next few years tremendous sums of money are going to change hands. Taxes have to be high. The people expect them to be high—and to see results from them.

These results must not be in the form of unnecessary personnel, but in necessary materials and services.

What are these essentials? Most certainly, if the present world crisis continues, they are ships of the air and sea, tanks and trucks, guns and ammunition. Just as certainly they are the services rendered by municipal governments.

The municipal governments, as pointed out here last month, are the authorities in direct contact with the American people. They must *do* their bit and not lie back out of motives of false economy and let the state and federal governments assume burdens that belong to local action and direction.

Local preparedness involves consideration of water as well as fire, water to drink and to pour on possible conflagration; sanitary conditions; police protection that possibly extends even into the air, as is already being tried by some departments; modern street lighting, and smooth transportation. Adequate fire-alarm systems and fire apparatus, the best hose, modern traffic-signal systems, two-way radio, are routine needs which should speedily be met. Parking congestion should not be tolerated, especially as the average parking meter collects 21 cents per day—$10,000 per year—in a city of 10,000 population.

In addition to the regular routine essential services of streets, water supply, sanitation, police, and fire protection, hundreds of municipalities operate utilities which collect revenues by which such utilities can be efficiently maintained. The extent of these utilities—including airports, bus systems, cemeteries, electric plants and distribution systems, gas plants, public markets, slaughterhouses, port facilities, besides water and sewage-treatment plants—is indicated by their tabulation for 1,807 municipalities of over 5,000 population in The Municipal Year Book 1940. The governing bodies of these and the many other utility-operating municipalities, should survey the condition of each of these municipal utilities and the possibility of their greater use. Another service of paramount concern is hospitals, owned by nearly 300 municipalities.

Now is the time for cities to get ready quickly to bring their services to top efficiency. The people expect it and will pay the price. When national defense has been achieved, or after whatever else is coming has come, the local governments will be in a much more favorable position if their utilities and services are in good condition than if they are run down, obsolete, deficient.

Fascism, Nazism, Communism, are the evil flowers rankly growing from a decayed and broken-down system. When the present furor is over, even if we haven't much money, let's have our thousands of municipal governments functioning with first-class equipment. That way lies competent control, rehabilitation, individual initiative, free enterprise, and the ability to pay continuing taxes.

**See also pages 56 and 97.**

# Fighting Fires Before They Occur

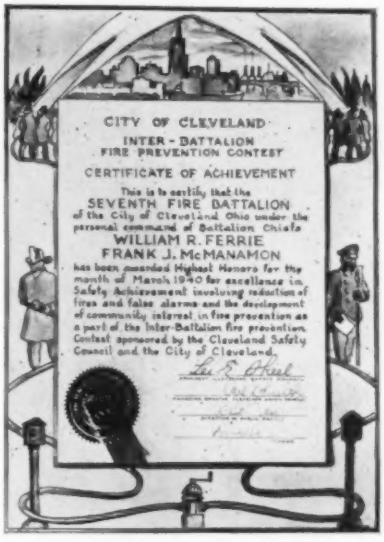
*By* WARDEN WILLIAM FERGUS
Fire Department, Cleveland, Ohio

IN THE old days of fire fighting, fire companies used to thunder down the street in competition with each other to see who could get to the fire first, who would lay the first hose lines, and who would throw the first water on the blaze—regular "he-man" stuff. Firemen were heroes in those days; but increasing knowledge seems to be taking the glamor out of the hero business. Today we have learned a lot about cause and effect. We have gradually found out what causes defects, and so in certain unglamorous ways we try to do things to prevent or anticipate them.

But even here the Cleveland firemen very properly strive to outdo each other. That same spirit of competition, that same desire on the part of some men to show that they can excel other men, will always remain a powerful force in human society. And when that rivalry produces a beneficial effect on the entire community, we can applaud these efforts, and encourage their spread. This is the spirit behind the Inter-Battalion Fire Safety Contest in Cleveland, in which the fire Battalions compete against each other to cut down the fire dangers that threaten everyone.

Some 258,962 persons have been brought into contact with our officers and firemen in meetings and public gatherings. Radio talks, however, are our greatest channel of influence, and we have given 108 radio broadcasts during the first four months of the Contest, and 92 spot announcements. Fire-prevention movies depicting hazards in the average home have been shown to 174 different groups. In addition to movies, the program of visual education includes slides, posters, signs, exhibits, window displays, and alarm-box demonstrations.

The coordinate arm of the Safety Department, the Police Division, attributes a great deal of its success in reducing accidents during 1939 (and again winning the National Safety Award) to signs and slogans in public places. We share this conviction. And supplementing all this, the daily newspapers, neighborhood and foreign language newspapers, store and factory journals, school papers, trade journals and magazines have all contributed their share in spreading the gospel of fire prevention. Over 500,000 pieces of literature of various types have been distributed.


CITY OF CLEVELAND
INTER-BATTALION
FIRE PREVENTION CONTEST
CERTIFICATE OF ACHIEVEMENT
This is to certify that the
SEVENTH FIRE BATTALION
of the City of Cleveland, Ohio under the
personal command of Battalion Chiefs
WILLIAM R. FERRIE
FRANK J. McMANAMON
has been awarded Highest Honors for the
month of March 1940 for excellence in
Safety Achievement involving reduction of
fires and false alarms and the development
of community interest in fire prevention as
a part of the Inter-Battalion fire prevention
Contest sponsored by the Cleveland Safety
Council and the City of Cleveland.

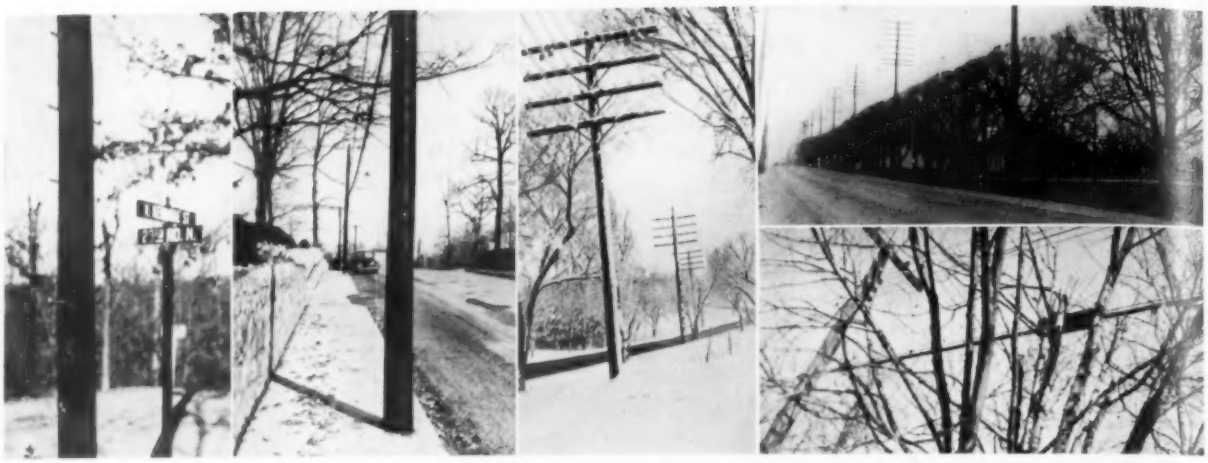
We are proud of these accomplishments, but believe our most important activity is the spreading of fire-prevention material in factories. When a factory burns down, it destroys the means of employment of many people. Even if rebuilding begins immediately, it takes months before operations can be resumed, and in the interim hardships and suffering develop among the employees and their families. This in turn hits the butcher, the baker, the landlord, and other persons with whom they deal. But this isn't the whole story. Forty-three per cent of the factories in this country that are destroyed by fire never re-open. Fire thus is a destroyer of employment.

Another important activity of the recently inaugurated Fire Prevention Contest is home inspections. These can be made only with the consent of the resident; but in more than 98 per cent of the cases the visiting firemen have been welcomed.

That part of the Battalion educational activity which introduces the public to the mysteries of the little red alarm box is of unquestionable value. A fire-alarm box is emergency equipment which few ever consider with attention until the emergency has actually occurred. The average citizen doesn't know the location of the box nearest his home, and wouldn't know how to operate it if he did know where it was. Nearly everyone who turns in a fire alarm is doing so for the first time. There are just about ten words in the simple directions on the alarm box, but people in a panic cannot be relied upon to follow them. People should be encouraged to spend a few seconds reading these instructions at their earliest convenience. Ask your public to saunter up to the nearest fire-alarm box and read those directions. In the Contest, there have been over 140 alarm-box demonstrations.

To telephone is often more convenient than running out to use a fire box; but experience has proved that many precious moments have been wasted by telephone alarms which are garbled by excitement and incoherent directions, by delays on party lines, and by misunderstanding the name of the street. This is illustrated by an incident that occurred in Atlanta, when an excited woman sent in an alarm by telephone. The Fire Department went to the address given and found no fire. Fifteen minutes later her husband called and gave another address, blistering the ears of the firemen for their delay. When the excitement subsided, it developed that the woman, who had just moved into the house a short time before, had given her old address.

This Contest has brought out new ideas. Each Battalion Chief is given credit for any good suggestions which he may make on his monthly report. More than 400 worth-while suggestions have been sent in. Before the Contest, the chiefs and officers and firemen had ideas but were never encouraged to divulge them. Now they are not only asked to send in suggestions, but are given credit for these suggestions in grading reports.



*Reasons for*

# Putting Wires Underground

*By* RAY BLAIN
**Engineer, Signal Corps, U. S. Army**

CONTRARY to general belief, underground construction is often economical and practicable for use in residential sections. It is quite true that the first cost of this type of construction is considerably more, but the maintenance cost is lower. Most residential sections are full of trees which add materially to the maintenance cost of aerial wire and cable. When lines have to be placed above trees or on extra-high poles, initial costs and maintenance costs increase greatly, and then, surely, consideration should be given to underground construction. Recent developments of ducts have made possible economies from past standards of construction.

There is a decided trend toward the use of underground construction in many sections of the country. One cannot blame property owners in modern and newly developed residential sections for refusing to permit the stringing of wires over their property and making wire attachments to their houses. Telephone companies have designed a stuffing-box type of cable terminal which may be mounted in a small underground pull-box located in an out-of-the-way section of a lawn, and lateral cables run from it to other residences in the same block. It would appear that a somewhat similar arrangement could be used by power companies, although larger manholes would in all probability be necessary. Some power companies mount transformers on poles in residential sections, but place all main and lateral cables underground. Houses built during the last few years in most sections of the country are all provided with basements. Usually, arrangements can be made to run main cables into the basement of one house centrally located and extend service cables from it to all nearby houses.

## Parkway Cable

Engineers and construction men seldom agree as to just where parkway cable should be used. Parkway is ordinarily the regular type cable with an extra covering of jute and steel tape armor. While it is true that this type of cable can often be used to advantage, many factors should be considered before deciding on its use in preference to conduit and manholes. Parkway cable is best suited to installation in locations where, in all probability, no change or increase in facilities will ever be required. However, this type of construction is not, as a rule, much lower in cost than conduit and manholes, and if it develops trouble, repairs are both difficult and expensive. A conduit system has the advantage that when a cable becomes defective or overloaded, it may be pulled out and a new one pulled in without disturbing the street surface.

Parkway cables do undoubtedly prove satisfactory on certain types of street-lighting systems, and some power companies prefer their use on all laterals and service connections, but insist that all main cables be placed in conduit. Some prefer the use of parkway cable because it need not be buried to the depth required for conduit. While this type of cable is often buried only a few inches and may easily be dodged around obstructions, it is doubtful that this is a good practice. It costs very little more to dig a ditch an additional foot in depth when it is once started, and this extra depth may prevent serious service interruptions. While parkway cable may give good service when buried only 12 inches deep, it is believed that a depth of from 24 to 32 inches will prove cheapest in the long run. Splices in parkway cable can be made in manholes or buried directly in the earth with the splice locations designated by a suitable marker. When a buried cable is placed under a street, or valuable trees or shrubs, it is a good idea to run it through a pipe or conduit so that it may be easily replaced.

Telephone companies generally

*Left to right, on the opposite page, are some of the reasons for putting wires underground where possible: a pole obstructs a street-name sign; obstructs a sidewalk; ice may cause damage and interruption of service; high poles call for drastic tree trimming; (bottom right) trees can easily be damaged*

construct adequate cable systems and provide ample facilities to care for a reasonable future growth based on a comprehensive forecast study. Often cable pairs required for fire-alarm systems may be rented from the telephone company at a much lower cost than separate lines can possibly be constructed and maintained. When this method is not considered satisfactory, it may be possible to rent duct space from the telephone company in which to install a special fire-alarm or signal cable. The duplication of line facilities of a particular type is always a waste and should be avoided.

When a duct system is available, lead-covered power cables are generally used to distribute commercial power. Lead-covered paper-insulated cables of 19-, 22-, or 24-gage copper conductors are generally used for telephone lines. The types of cable for traffic-control signals will depend on the type of system being used. Numerous types of cables are used in a variety of arrangements on fire-alarm systems. This is often caused by a carry-over and extension to an old existing system. It would appear that necessary control could in most cases be obtained over the small conductors of the type used for telephone communication. The use of commercial telephone material for the construction of numerous control systems would certainly make large savings possible. It does seem ridiculous to utilize a large conductor such as a No. 9 copper wire to carry the small current at a low voltage for operation of a relay to provide control features. No doubt many abuses of this nature will be corrected in the future. Large savings are always possible when commercial supplies are utilized instead of requiring that apparatus and supplies be of special design.

When for any reason the use of underground construction is impossible, an effort should be attempted to make the aerial plant the least objectionable possible to property owners. Good, straight poles of proper height should be used to support the wires or cables. Poles should not be painted, for this shortens their life, and the natural wood or creosoted pole weathers with age to blend with nature's colors much better than is possible with any paint. Spans should be of the maximum length possible and still maintain proper clearance over streets, walks and driveways. When possible, one jointly-used pole line should carry all wire services. Two pole lines along a narrow street or alley are wasteful as well as unsightly.

Pole lines in alleys arranged so that service drops may be run into houses from the rear are not commonly considered unsightly and are seldom objectionable to property owners. Occasionally some one with a garden in the rear of his property will object to poles and wire cluttering up his view. Also, in many new residential sections now being promoted, no alleys are provided and pole lines must be placed on streets, and service entrances made at the front or side of residences. When pole lines are placed on streets, their proper location is most important. An effort should be made to clear even small trees, to avoid trimming problems later. In this age of high land values, sidewalks are unusually narrow, and to reduce their width even further by placing a pole directly in them presents a deplorable condition. In most cities, we do not need to look far to see horrible examples, such as a two-foot pole placed in a three-foot sidewalk, reducing effective width to about one foot. This is another factor which will not tend to make friends for our public utilities. Poles are often placed near street corners, thus obstructing street signs. The installation of guy wires presents another serious problem.

There seems to be a possibility of wire service increasing considerably in residential sections in the future: a burglar alarm with infrared rays to protect windows and notify the police department automatically in case of forced entry; special fire-alarm systems to protect individual residences and notify the nearest fire station in case of a sudden temperature rise in any room. The need of a fire call-box with a telephone attached has also been voiced in some quarters; television may be a wire service leased on a monthly rental basis in the not far distant future. Undoubtedly, wire service of the future is due for a material increase, which should be kept in mind in engineering present-day communication systems.

In the city of the future, it may well be that large concrete tunnels or "utilidors" will run under all streets and that smaller service tunnels will connect into the basements of all buildings. These tunnels will carry all utilities, such as water, gas and steam mains for heating, all light and power, telephone and signal cables.

It is doubtful that a system of utilidors even today would cost much more than the present distribution expenditures of the various utility companies. While central heating is not used extensively outside the congested sections of large cities, it is generally believed that it will have a wider application in the future. All this emphasizes underground construction as the practical modern method of distribution.

How an underground system may be constructed economically will be described in THE AMERICAN CITY next month.

## *Lower Rates and Big New Diesel Coming*

THE GRAND HAVEN, MICH., DIESEL ELECTRIC PLANT, described in the June, 1940, issue of THE AMERICAN CITY, announces a reduction in electric rates on June 1, as follows:

| MONTHLY USE | CENTS FROM | CENTS TO |
|---|---|---|
| *Commercial* | | |
| First 30 hours | 5.0 | 4.9 |
| Next 100 hours | 3.4 | 3.2 |
| Thereafter | 2.0 | 1.8 |
| *Residential* | | |
| First 10 kwh | 5.0 | 4.5 |
| Next 20 kwh | 4.0 | . |
| Next 40 kwh | . | 3.0 |
| Next 45 kwh | 3.0 | . |
| Next 125 kwh | 2.0 | 2.0 |
| Thereafter | 1.5 | 1.5 |

An additional clause in the general industrial power rate sets up a 1-cent rate for off-peak or night power. Minor changes were made in street-lighting rates.

A new 3,000- or 4,000-hp diesel-electric unit will be added to our three 1,140-hp DeLa Vergne engines and our 2,250-hp Nordberg diesel engine.

J. B. SIMS,
Superintendent, Board of Public Works, Grand Haven, Mich.

# Refuse Disposal

## *Municipal Collection and Incineration in New Rochelle, N. Y., with Costs*

*By* THEODORE REED KENDALL
Engineering Editor,
THE AMERICAN CITY

THE collection of ashes and mixed refuse in divided truck bodies in New Rochelle reduces duplication of collections and permits quick disposal of a load where the mixed refuse is delivered to the incinerator pit, and ashes to a dump on the same lot.

The first Morse-Boulger incinerator built by the city consisted of two 34-ton units built in 1916. By 1926 two additional units of the same size were required because of the growth of the city. The average collection of 83.2 tons daily in 1939 from the 66,000 population of New Rochelle showed the need of the new, modern incinerator placed in operation October 16, 1939.

### Collection

Collections are made by city-owned trucks twice weekly throughout the year. Collections of both garbage and mixed refuse as well as ashes are made from the back yard. As yet householders are not required to wrap garbage, for there is an excess of dry combustible material in the mixed refuse which gives a hot fire in the incinerator furnaces. The collection crew with each truck consists of two men ahead setting out the cans, two men on the truck, one to throw up the cans, and the other to empty them in the truck, and then a driver. Two additional men set back the cans in the yards. This system minimizes the time that unsightly rubbish and refuse cans adorn the curbs of New Rochelle, which prides itself on its name, "The Queen City of Westchester County."

The city collection fleet consists of eight 14-yard Mack and Autocar trucks and one 7-yard Autocar truck. The bodies are divided by a swinging gate so that one-third of the volume of the body forward may be devoted to ashes and the remainder of the body to the collection of mixed refuse. About 3 tons of ashes are carried per load.

On Monday, when the heaviest collection occurs, each truck brings in about four loads to the incinerator, about 22 miles each daily. Collections are made every weekday in the year except Christmas.

As soon as a truck is fully loaded, —and this means several feet above sideboard level,—the entire load is covered with a heavy tarpaulin tied to the sides. When the truck reaches the incinerator, the tarpaulin is carefully rolled up, and during the loading period it is carried on hooks at the side of the truck's

*The New Municipal Incinerator, Showing the Entrance Ramp*

frame. The trucks have a good overhang when dumping into the receiving pits at the incinerator, but inevitably some refuse is spilled on the floor. Each truck crew is required to clean the floor before they leave the incinerator for another load.

At the entrance to the incinerator yard is a small building containing the weigh-beams of a large Fairbanks platform scale. Here each load is weighed as it arrives en route to the incinerator or dump, and a complete record is maintained of the time, name of the driver, number of the truck, and the gross and net weight of the load. This means that each truck, the weight of which is unknown, particularly in the case of private trucks, is also weighed as it leaves the yard. At the weigh-house a record is also kept of the animals delivered to the incinerator. In 1939 this included 2,200 cats and 722 dogs delivered by the Humane Society, 158 cats and 252 dogs delivered by city trucks and private collectors, and 1 horse.

There are still three private refuse collectors in New Rochelle who provide daily collections for business houses and industries. These deliver about 15 tons of refuse daily out of the total of 88 tons daily average since the first of 1940.

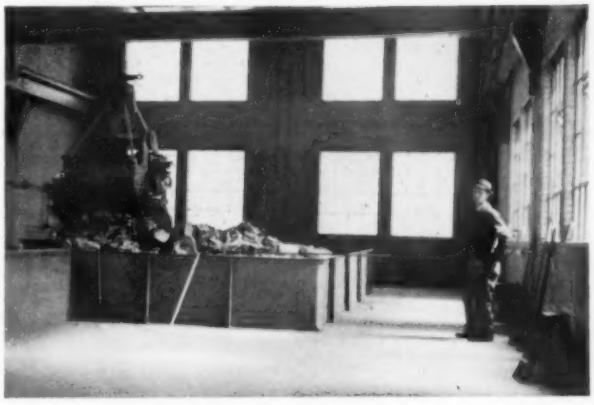
### The Incinerator

The new 250-ton incinerator is housed in an attractive buff brick building with steel sash located in the center of a large yard. Plans and specifications for the landscaping are already complete and awaiting financing. The incinerator was built with a 45 per cent PWA grant, and was estimated to cost $300,000. The actual final cost was only $266,000, and $15,000 of this total was for a sewage-screenings press and incinerator at the sewage-treatment plant two miles away. The structure is located on a swamp, but an adequate foundation was provided for both the building and the stack by driving about 500 wooden piles averaging 55 feet in length.

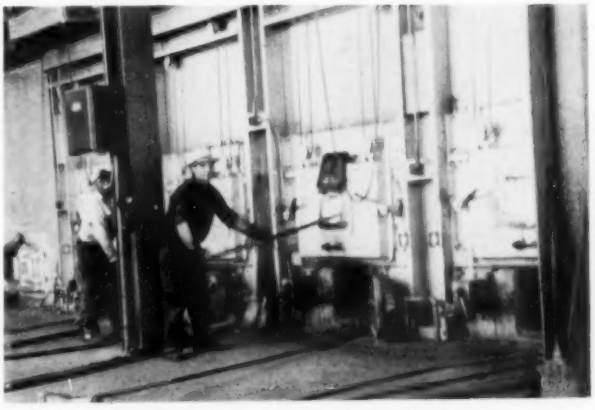
The collection trucks, after weighing, drive up a concrete and steel ramp to the dumping floor and discharge the combustible portion of their loads into two 70-ton capacity storage pits. The mixed refuse is picked out of the pits by a 1½-yard Blaw-Knox grab-bucket operated from a 8-ton Shaw-Box traveling crane. The plant consists

of two furnaces with four charging hoppers for each furnace. A novel and effective dumping tray is built behind each charging hopper, extending from the hopper itself to the edge of the storage-pit wall. Each bucket-load of mixed refuse is dropped on this tray, some of it falling forward toward the hopper, and then the hopper attendant pulls the refuse forward, making it possible to locate missing silverware and other valuables readily, and also preventing choking of the charging opening by bulky material. Lights are located back of the attendant, one light corresponding to each hopper. Duplicates of these lights on the stoking floor, with switches, make it possible for attendant and stoker to work in harmony. When a hopper light is burning on the charging floor, it means the gate below is closed. These lights aid both crane operator and hopper man. The operating crew works from 8 A.M. to 4:30 P.M. five days a week. The incinerator is shut down on Wednesday and Sunday. The Beaumont-Birch charging gates roll the gate on top of the furnace slowly forward.

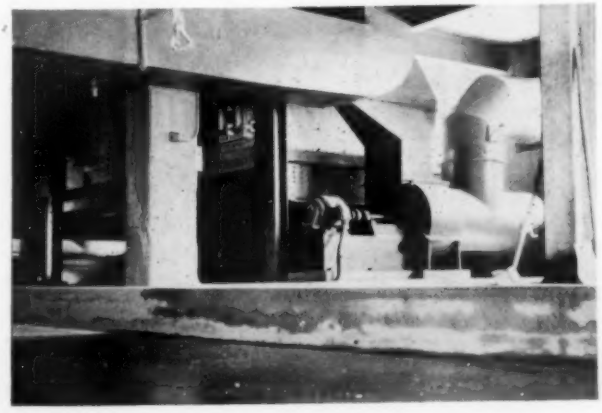
*Loaded Truck Covered with Tarpaulin on Entrance Ramps to Incinerator*



*The Charging Hopper of No. 2 Furnace, Showing the 1½-Yard Charging Bucket*



*The Stoking Doors of No. 1 Furnace, Showing the Hand Chain for Operating the Charging Doors*



*The Blower and Ventilating Duct for No. 1 Furnace Preheater Located in the Ash Tunnel*

These Beaumont-Birch hand chains and wheels are used instead of pneumatically operated gates, thus eliminating one or two pieces of power equipment from the plant.

The gates consist of a heavy steel plate which cuts off the opening in the bottom of the charging hoppers, a charging hole cover suspended from the underside of the steel plate by means of a link mechanism, and a discharge chute which is attached to the cut-off gate and forms an enclosure to direct the discharge from container to incinerator.

The entire gate moves on roller-bearing wheels, and the construction of the forward links permits the cover to seat into the charging hole frame which extends down into the opening in the top of the incinerator.

The gates are operated by means of ragwheels and hand chain from the stoking floor.

The furnaces are well insulated, making it necessary to have unit heaters for maintaining a comfortable working temperature for the men in the winter. Each of the four cells in the two furnaces

contains 37 square feet of open metal grate area, with a dumping grate of 4 square feet area at the front of each cell, also 18.5 square feet of refractory tile drying hearth. The grates are dumped at noon, and at 3 P.M., giving a very clean ash. The ash is from 16 to 18 per cent of the total weight of refuse and garbage.

The furnaces are divided into three parts—the firing chamber, the primary mixing chamber, and the combustion chamber; so that the operator may supply any deficiencies of air into the primary mixing chamber. It gives high turbulence to the gases to improve combustion and an incandescent baffle on which the gases impinge.

A pre-heated air duct carries the air for supporting combustion from the Morse-Boulger cast-iron tubular pre-heater to the ash-pit beneath the grates.

The temperature in the combustion chamber varies between 1400° and 1800° F. Every endeavor is made to keep the temperature down below 1800° to protect the interior of the furnaces and the combustion chamber, but the excessive rubbish in the mixed refuse bin makes this difficult. The one horse which has had to be disposed of since the new plant was started was trussed up by tieing the four feet of the animal over the equalizer bar, which is usually attached to the grab-bucket. The body was then poised over a hole on the charging floor directly above the combustion chamber, and the rope tieing the horse's feet was cut, dropping the body into the combustion chamber, where it was quickly consumed. Bodies of cats and dogs are thrown through a gate in the flue leading to the stack at a point between the combustion chamber and the stacks.

## Ash Removal

The hot ashes from the dumping grates are discharged into copper-steel refractory lined ash hoppers directly beneath the grates. After quenching, the ashes are discharged into trucks for final disposal.

The flow of ashes from the hoppers to the truck is controlled by means of Beaumont pivoted, water-sealed, smoke-tight gates which drain off the quenching water. These gates are operated by means of pull rods from the ash tunnel floor. The same man who runs the truck operates a RD6 tractor and bulldozer to smooth the surface of the dump. All ash is weighed before dumping, to complete the record of the operation of the incinerator. A heavy steel Truscon roller door at each end of the ash tunnel protects the operator in bad weather and prevents too strong a draft in the tunnel.

The fine fly ash in the combustion chamber is removed on Sunday. The work is done by the one man on duty, who acts as watchman. The work is perfectly safe, since the incinerators are closed down on Sunday. The base of the stack was cleaned after three months of operation, and only two cans of fine ash were removed.

On Saturday, except in the coldest weather, the entire inside of the building is hosed down from top to bottom, including the underside of the roof. This procedure removes any fine ash which may have collected on the inside of the building, owing to some householders' depositing ashes with the rubbish in cartons or other containers. Every week the receiving pits and the ash-run are disinfected with a coal-tar product.

## Accessory Equipment

A 1¼-inch Deming circulating pump delivers cooling water to the dampers and then to a cooling pond on the roof. The water is purchased from a private company, so every effort is made to conserve the water used in the plant. In summer the cooling water, after it has passed through the dampers, is run to a heat exchanger to heat the water for the showers and other domestic uses.

Each furnace is provided with an indicating pyrometer mounted on the stoking floor, and a recording pyrometer mounted in the plant superintendent's office. These are Brown Instrument Co. units and indicate and record temperatures in the combustion chambers and the temperature of the preheated air being introduced under the grates.

Air for the forced draft is furnished by two American blowers driven by 15-hp G.E. motors. Air is taken from the outside during the summer and from the inside of the building in winter and run through the two pre-heaters. A Burnham boiler with a Ray oil burner located in the basement furnishes steam for winter heating, and through a heat exchanger heats the domestic water supply during cold weather. A 1,000-gallon oil tank is built into the boiler room. A hot-water connection is provided in the ash tunnel, so that the tunnel can be hosed down with hot water, and also so that hot water may be delivered to the truck storage platform for washing out the collection trucks at night. A Chicago sump pump in the basement raises house sewage to the elevation of a nearby city sewer.

## Labor Required

Ten men are required to operate the plant on the single shift. These include the chief operator, the man working in the ash tunnel and on the dumps, a crane operator, two men on the charging floor and four on the stoking floor, and a night watchman.

The locker room in the basement includes individual steel lockers for the men, two sinks, two showers, one urinal and one toilet.

## Storage Garage

The ramp and turning platform of the old plant were continued in use and housed-in by roof and end walls between the old and new buildings. Incinerators in the old building are to be removed and both floors later used for truck storage. The two old stacks will also be removed.

A description of the incinerator would not be complete without mentioning "Micky," a very attractive cat, which took up its abode in the plant during construction and is now the plant mascot.

## Costs

In 1939 a total of 41,431 tons of garbage, rubbish, and ash were delivered to the incinerator and dump. Of this total, 21,906 tons was garbage and mixed refuse, which was burned. In the old incinerator the cost of labor in

(*Concluded on page 73*)

# Street Cleaning

## *Organization, Litter Troubles, Patrol Cleaning and Flushing, Catch-Basins, and Snow Removal, with Costs, in Toronto, Ontario*

*By* H. D. BRADLEY
Street Commissioner

THE general activities performed by the Department of Street Cleaning of Toronto include the cleaning of public thoroughfares, the collection and disposal of ashes and household waste material, the cleaning of catch-basins, the oiling of unimproved roadways, and the removal of snow from the downtown section and main arteries. This article will be devoted to the work of street cleaning and snow removal.

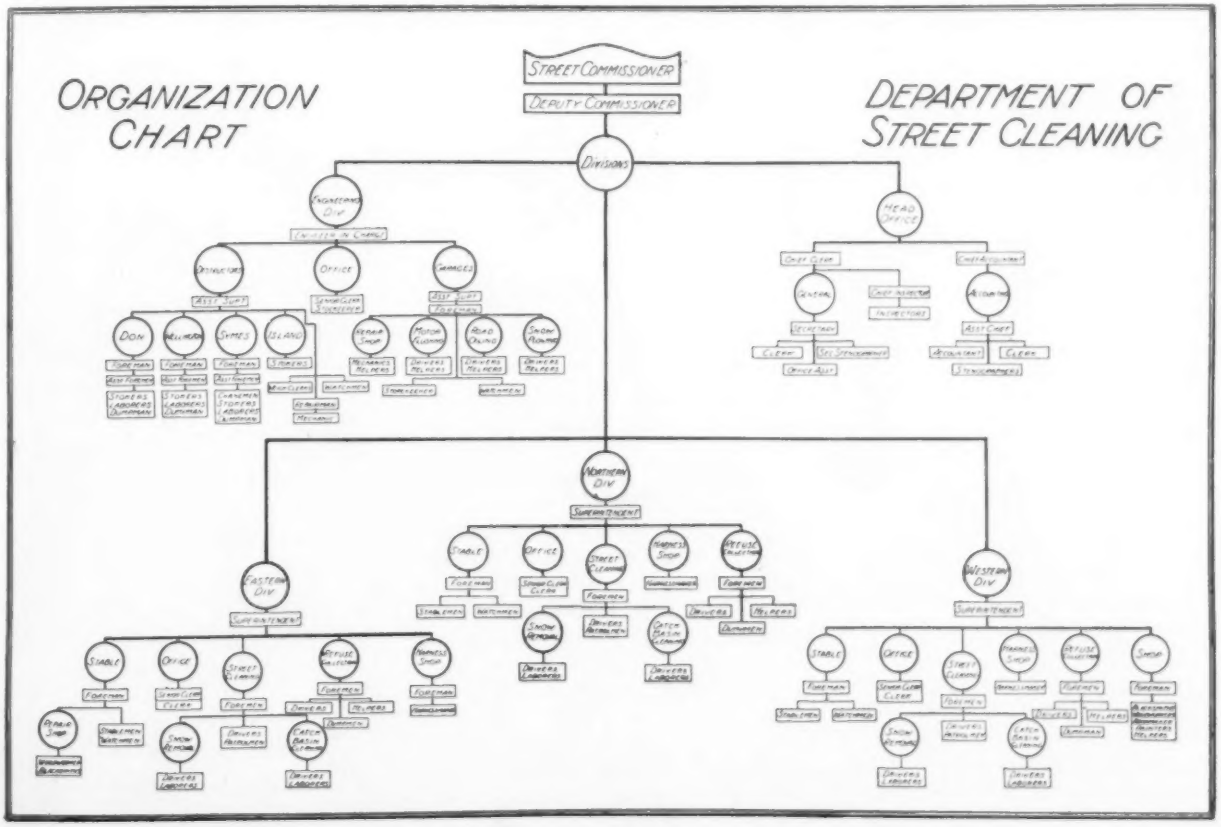
The organization for street cleaning comprises a central administration office, three main geographical divisions for street cleaning and refuse collection services, each controlled by a divisional Superintendent, and an Engineering Division controlling the maintenance of motor equipment and the operation of four refuse-disposal plants.

For the street cleaning operations there are five foremen's districts comprising the downtown and business sections of the city, while the remaining sections are under the jurisdiction of refuse-collection foremen, who supervise the work in conjunction with the refuse-collection service.

During 1939, there was a daily average of 939 men employed in the various services. Of these, there were 150 truck drivers, 90 horse drivers and 250 laborers engaged regularly in refuse collection service, 187 street sweepers were employed for a period approximately 36 weeks on street cleaning work, while 113 men were engaged continuously at the refuse-disposal plants. The street cleaning service comprises hand brooming, the cleaning of catch-basins, machine flushing of roadways, snow removal, and the oiling of unimproved roadways.

### What Is the Best Way?

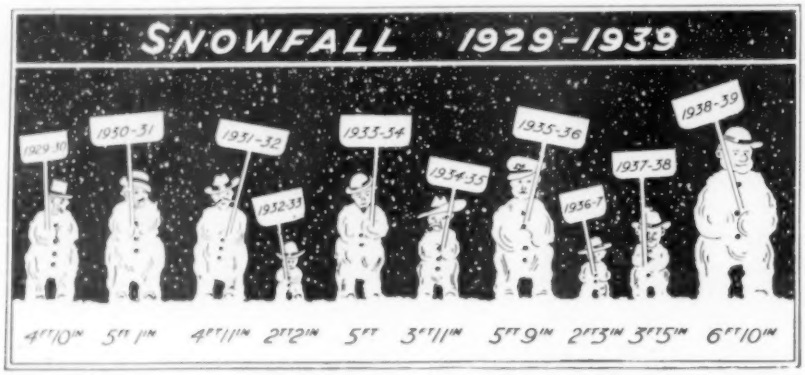
The best methods to be employed in cleaning streets can never be determined once and for all. There are many variable factors and changing conditions to be met, and each must be reviewed periodically in order that the best methods may be adopted. Further, there is no



single method that can be universally adopted for all streets with satisfactory results. Each of the approved methods has advantages and limitations, and each is well suited for some conditions and much less so for others. The proper methods to be employed must be determined in the light of the type and condition of the pavements, the extent of automobile parking, the topography of the city, its climate, and the amount of traffic.

as the condition of the latter is to a large extent dependent upon the regular removal of refuse.

The general practice of householders in placing grass cuttings and lawn rakings loosely upon the roadway is a common source of considerable unsightliness, and results in inconvenience and extensive damage if a heavy rainstorm occurs. Loose material lying on the roadway is carried to the sewer inlet, blocking the grating and causing heavy floods. The proper procedure for householders to follow is to place all lawn rakings, grass cuttings and other rubbish in suitable receptacles, and place these receptacles out for removal only on the regular collection days. The acquisition of an additional refuse receptacle by householders would overcome in a great measure the unsightly conditions which prevail on some streets.




*Toronto uses this novel method each year to compare the annual snowfall*

## Unsightly Streets

The promiscuous littering of the streets by thoughtless citizens offers perhaps the most difficult problem. A newspaper carelessly discarded and then separated by the wind will make the entire street appear relatively dirty, whether it is or not, while the distribution of handbills, circulars and weekly district newspapers adds its quota to the unsightliness of the street. Invariably these leaflets are carelessly thrown upon porches and steps, are at the mercy of prevailing winds, and are finally deposited upon lawns and boulevards, or lodged in shrubbery.

Regardless of whether the house is occupied or not, porches are strewn with literature daily. Even the unoccupied home appears to be an open invitation for delivery boys to toss additional leaflets to the existing accumulation.

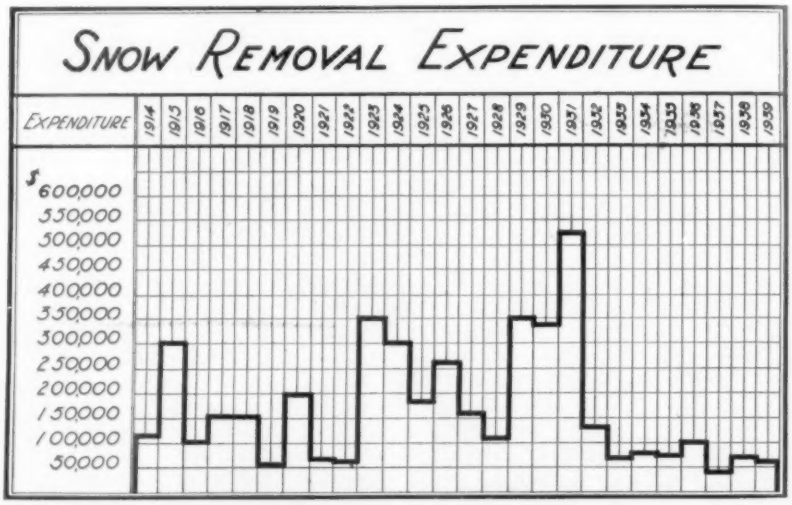
The city's attractiveness depends perhaps more upon the appearance of the public thoroughfares than upon any other municipal operation. The removal of garbage and ashes is of equal importance and is necessarily intimately associated with that of clean streets, inasmuch

## Patrol Cleaning

There are 575 miles of streets in Toronto; 544 miles are paved or improved roadways. The downtown area, main thoroughfares and business districts are cleaned by the patrol system. Each patrolman has a defined area to sweep, which may be covered from one to eight times daily, according to its requirements. Each patrolman is provided with push-cart, broom and scraper, and as the tubs are filled, they are left at designated points in cabinets, to be later picked up by a motor truck for removal to the dump.

In residential sections the patrolmen work in pairs, one on each side of the roadway, brushing or scraping the dirt into piles, followed by a pick-up vehicle. During the summer season of 1939, a total of 135,804 cubic yards of litter was swept up and removed from the streets of Toronto.

*The chart below shows the cost of snow removal each year since 1914 in Toronto, Ontario*




**UNIT COST OF HAND-BROOM SWEEPING OF IMPROVED ROADWAYS, 1939**

| | |
|---|---|
| Total cost (foremen, labor, cartage, supplies) | $292,472.49 |
| Area of improved street mileage (square yards) | 9,328,757 |
| Cost of maintenance per 1,000 square yards per season | $31.35 |
| Amount of sweepings collected (cubic yards) | 135,804 |
| Cost per cubic yard (sweeping, collecting and removing) | $2.16 |
| Cubic yards removed per 1,000 square yards per season | 14.5 |
| Number of patrolmen | 187 |
| Average area maintained per patrolman (square yards) | 49,000 |
| Average number of times swept per season | 90 |
| Cost of sweeping per 1,000 square yards (sweeping, collecting and removing) | $0.34 |
| Cost of sweeping per mile per cleaning | $5.99 |
| Number of streets in city | 1,823 |

## Catch-Basin Cleaning

There are two general methods used to clean catch-basins—manual and the Auto-eductor. In the manual method, long-handled scoops or dippers are used for lifting the material. The dipper commonly used consists of a small shovel blade bent at right angles, to which is attached a 9-foot handle. The material is lifted from the catch-basin, and after the water has drained off, the piled débris is shoveled into trucks and hauled to the dumps. This method is not altogether satisfactory, for the material taken from the basins and placed on the pavement has a very unpleasant appearance and occasionally has an extremely foul odor. Moreover, the pavement surface around the catch-basin is usually left in a dirty and unsanitary condition, even though some care is exercised in cleaning up. The process is quite slow and expensive, but it does not require a large outlay for equipment or tools.

The most satisfactory method for cleaning catch-basins is by use of the Auto-eductor, which is a self-contained unit and consists of a large water type tank and centrifugal pump mounted on a motor chassis. The pump is capable of lifting the heavy solids from the catch-basin sumps into the eductor tank. In the cleaning process, a telescopic suction pipe is lowered into the basin below the water level. The pump pulls the mixture of water and solids into the tank, while the material in the basin is constantly agitated by a stream of water under pressure. The solids are separated in the tank, and the water flows back into the catch-basin through a separate discharge line. The Department of Street Cleaning of Toronto has two such machines in operation, and they have proved to be most economical and effective for this type of work. The costs shown in the summary below are for combined machine and hand cleaning of catch-basins in 1939:

| | |
|---|---|
| Expenditure (wages, cartage and supplies) | $12,907.03 |
| Number of cubic yards | 9,540 |
| Number of basins cleaned | 46,973 |
| Cost per cubic yard (cleaning and removing) | $1.36 |
| Cost per basin per cleaning | $0.275 |

## Machine Flushing

Machine flushing is regarded as the most sanitary method for the cleaning of streets, inasmuch as the pavement surfaces are cleaned thoroughly and rapidly, while most of the fine dust which escapes the patrolman's broom is washed into the gutter. The space under parked cars can be cleaned better by this method than by any other accepted cleaning procedure.

The Department has six motor flushers in operation, each of which is equipped with a tank having a capacity of 1,000 gallons of water. The water is applied to the roadway under pressure from a centrifugal pump through a perforated pipe arrangement. The pipe assembly is such that the entire street may be flushed in one operation. During recent years, because of traffic conditions, this work has been carried out during the night, beginning at 10:00 P.M., and terminating at 7:00 A.M. By this method the débris washed into the gutter is readily removed by the street sweepers the following morning. Owing to limited equipment, the street-flushing service is performed only on the downtown business area, main arteries and outlying business areas.

STREET FLUSHING, 1929-1939

| Year | Street Mileage Flushed | Quantity of Water Used (Gals.) | Total Cost, Wages and Truck Upkeep | Cost Per Mile |
|---|---|---|---|---|
| 1929 | 2,740 | 15,229,000 | $8,427.82 | $3.07 |
| 1930 | 3,931 | 20,230,000 | 12,809.06 | 3.26 |
| 1931 | 6,037 | 34,392,000 | 15,689.01 | 2.51 |
| 1932 | 4,492 | 25,465,000 | 12,313.02 | 2.74 |
| 1933 | 4,352 | 19,690,000 | 9,714.57 | 2.23 |
| 1934 | 6,687 | 24,818,000 | 10,747.48 | 1.61 |
| 1935 | 5,925 | 22,795,000 | 9,737.86 | 1.64 |
| 1936 | 6,747 | 20,233,000 | 9,944.37 | 1.50 |
| 1937 | 11,243 | 31,342,000 | 15,200.49 | 1.35 |
| 1938 | 11,334 | 32,410,000 | 14,755.15 | 1.30 |
| 1939 | 9,450 | 27,156,000 | 15,093.41 | 1.60 |

## Snow Removal

When a heavy snowstorm occurs in Toronto, it is necessary to remove the snow from the main arteries and business areas. This work is performed by hand labor, city-owned and hired trucks. The city also operates seven snow-plows on the main thoroughfares and streets on which the street-railway lines exist. On street-car lines the Toronto Transportation Commission uses sweepers and plows. The track allowance is swept by motor sweepers followed by plows with spreader arms which move the snow back from the tracks approximately 8 to 10 feet. Further plowing by the city is necessary to move the snow into a windrow in the gutter, so that vehicular traffic may pass the street cars.

When a snowfall of sufficient intensity occurs, the organizations of the city and the Toronto Transportation Commission take such action as appropriations and facilities permit. It is necessary, if reasonable service is to be given, that the snow-fighting forces commence operation immediately after a storm starts, work through the storm, and clean up afterwards. Otherwise, traffic will soon consolidate the snow, which with the variable winter temperatures is soon transformed into ice. Repeated snowfalls eventually create a considerable depth of ice, which is relatively more costly to remove than the original snow.

Equipment and funds, however, have not been available to permit this work to be carried out on all main arteries and business thoroughfares to the proper extent. Were an adequate appropriation provided for the utilization of hand labor and motor trucks for removal, augmented by a sufficient number of snow-plows and snow-loaders, the city would be in a position to cope more ably with winter conditions.

The development of snow-removal operations and the growth of public demand for increased municipal removal services has been gradual but very steady since the appearance of motor vehicles in large numbers on city streets. It is apparent that, in the main, municipal authorities are responding to the increasing demands of motorists, business men and citizens, by rendering greater service in keeping open the principal arteries of travel during the winter season.

Deep snow and subsequent accumulations of ice impede all classes of traffic and interfere with normal business activities. If snow and ice are not promptly removed before a thaw, marked annoyance and inconvenience are evident. Thousands of motor-vehicle drivers probably suffer the greatest inconvenience if snow is not quickly removed and icy conditions thereby alleviated.

# New Sewage-Treatment Plant at Lansing, Michigan

***Features of Plant Include Detritor, Comminutors, Pre-aeration, Activation, Sludge Digestion, with Ground Garbage, Vacuum Filters and Sludge Burning***

HOUSED in an attractive yellow-brick building, the new sewage-treatment plant for Lansing embodies many distinctive features of design and operation. Using the activated sludge process of clarifying the sewage, it also has sludge digestion, and with it the disposal of the garbage of the city by grinding or shredding at the plant and delivery direct to the sludge digesters by pneumatic ejectors. The high production of gas is used to operate a steam boiler and a gas engine at the plant, resulting in moderate economies of operation. The average flow through the plant is 8,000,000 gallons daily from the sewer system, which is part separate sewers and part combined. An effort is being made at the present time to make it a separate system, with only the sanitary sewage flowing to the sewage-treatment plant, all storm sewage being delivered direct to adjacent streams.

## The Office Building

The main office and laboratory building contains rest rooms for both men and women, a complete laboratory for the control of the operation of the plant, and the superintendent's office. A corridor from the front door leads through the center of the building direct to the primary settling tank building. The interior of the building is of tile and brick construction, and the laboratory is built along the most modern and efficient lines.

## Grit Chambers and Comminutors

Sewage is delivered to the plant from a pumping station of 25 mgd capacity, through a venturi meter, and then flows directly into a grit chamber, having a Dorr Detritor or grit collector, equipped with bucket elevators and a screw-feed which delivers the grit through the wall at the back of the primary settling tank building, direct to a truck which hauls it out for disposal on the grounds of the plant. The sewage flows from the grit chamber through two Chicago Comminutors, which completely grind up the floating material which has passed the pumps, as well as bulky solids. The flow is then through a pre-aeration tank where the action of finely divided air bubbling up through the sewage tends to release oil and grease from the liquid and cause it to gather on the surface. It is skimmed off for disposal by pumping either to the incinerator or to the digestion tanks.

An unusual feature of the primary settling tank building is the use of large areas of glass blocks taking the place of the usual metal sash windows in the brick walls. The roof framing is of concrete, as are the columns, and every effort has been made to prevent the accumulation of moisture which might cause deterioration of the building itself. Forced ventilation is used to draw off vapors from the sewage and to deliver them to the forced air draft in the incinerator.

The sewage has a detention period of ten minutes in the pre-aeration tank, and one hour in the primary settling tanks, under the average flow of 9 mgd. The primary settling tanks are 16 feet wide and 70 feet long, and are equipped with Jeffrey sludge collectors.

## Aeration and Clarification

The sewage flows from the pri-

*General View of the Lansing, Mich., Sewage-Treatment Plant, Showing the 25,000-Cubic-Foot Gas Holder*

mary settling tanks through a concrete flume under the primary tank, and then outside the building and around the digestion tanks to the four aeration tanks at the west end of the plant through a 36-inch steel pipe. These tanks are 220 feet long and provide a detention period of six hours based on the average flow. The volume of returned sludge is 25 per cent. Two rows of diffuser plates are used, both placed so as to give a spiral flow of the sewage through the tanks.

The sewage then flows to two 80-foot-diameter final settling tanks, equipped with Hardinge Super-Thickeners. Sewage enters the tanks through small ports, and the activated sludge can be seen to enter the clear surface water like puffs of smoke and then start settling immediately. The ports are about 6 inches from the surface of the tank. Located centrally between the two tanks is the effluent weir of white glazed tile, designed to show the clarity of the effluent, which flows over it direct to the river without further treatment.

The blower building, located between the activated sludge tanks and the digester, contains a Worthington 240-hp sludge-gas engine driving a 5,000-cfs Root-Connersville blower and two 4,000-cfm blowers operated by 200-hp Westinghouse motors. In the blower house there is also a Simplex rate-of-flow indicating gage and a Simplex indicating and recording gage on the air line, so that there is a complete record of sewage flow and air flow for determining the ratio of air to sewage at any moment. A 5-ton Shaw-Box crane is mounted on the wall of the blower building to facilitate handling the installation of the blower equipment originally and for future maintenance repairs as required.

## Sludge Disposal

All the sludge pumps are located in the pipe gallery between the end of the activated sludge tanks and the clarifiers immediately south of these tanks. The sludge pump batteries consist of a De Laval 150-gpm waste-sludge pump driven by a Lima 1-hp electric motor and a 1,000-gpm De Laval return sludge pump, driven by a 5-hp Lima electric motor. This second equipment is in duplicate. In this pipe gallery is a Chicago float-operated sump pump delivering to the raw-sewage line.

*A Section of One of the 220-Foot Aeration Tanks at Lansing*

The raw sludge from the primary settling tanks is handled by two Domestic sludge pumps of the plunger type, located in the incinerator building.

## The Four Digesters

There are four digesters, each 60 feet in diameter and 26 feet deep, equipped with fixed covers and Dorr stirring mechanisms. The garbage collected throughout the city is ground at the plant by Jeffrey grinders and delivered by pneumatic ejectors to these four digesters. Before the garbage began to be delivered to the digesters, the production of gas was about 100,000 cubic feet per day, and this has increased to an average of 247,000 cubic feet daily with the garbage. The supernatant liquor from the digesters flows back to the raw-sewage influent line or lagoon. The digesters are equipped with heating coils for hot-water heating, and the gas is collected in a 25,000-cubic-foot gas holder located immediately north of the sludge-disposal building. The gas holder is provided to take up the slack between the production of gas and its utilization by the gas engines and burners, but since the addition of garbage to the sludge in the digesters there has always been an excess of gas for use in the plant.

## Vacuum Filters and Incineration

The digested sludge is conditioned by the addition of ferric chloride and lime, which are mixed with the sludge in a paddle mixture and then delivered to an Oliver vacuum filter with a gross filtering area of 200 square feet. The dewatered sludge is then delivered by two belt conveyors, one running at right angles to the other, and equipped with a Merrick Weightometer to permanently record the weight of dewatered sludge delivered to the incinerator. The sludge is delivered to the top of a Decarie rabble-arm incinerator, which has a capacity of 60 tons per 24 hours of either raw or digested sludge cake from the filter. If it is desired to dispense with incineration at any time, a third belt carries the dewatered sludge through the wall to an outside hopper, from which it can be loaded directly into trucks for hauling away or use as a soil conditioner. A Jeffrey bucket elevator brings up the ash from the bottom half of the incinerator and delivers it to this third belt, so that it may be removed with any unburned sludge.

The new Lansing sewage-treatment plant is operated under the direction of S. C. Jacka, City Engineer, with George Wyllie, Superintendent in direct charge at plant. The plant was designed by Shoecraft, Drury & McNamee, of Ann Arbor, Mich., and cost $940,000. It was placed in operation late in 1938.

# New 31-Mile Pipe Line for Grand Rapids, Michigan

## *Reinforced Concrete Pipe Produced at Daily Rate of 1,200 Feet, for New Supply from Lake Michigan*

THE construction of a new water supply from Lake Michigan at a point approximately 31 miles due west of Grand Rapids, Mich., is nearing completion. In May 1939, bids were received and a contract awarded to the Lock Joint Pipe Co., Ampere, N. J., for manufacturing 163,100 feet of 46-inch diameter reinforced concrete pressure pipe for the supply line. At the same time, a contract was awarded to Price Brothers, Inc., of Dayton, Ohio, for the construction and installation of the pipe line and appurtenances.

Shortly after receiving the contract, the Lock Joint Pipe Co. leased property on a railroad siding near Grand Rapids, and the erection of a plant for the manufacture of the pipe was immediately started. In spite of the large amount of new plant and equipment which had to be fabricated and purchased, the preliminary work was completed and the first pipe produced within two months after the contract was awarded. Then manufacturing proceeded at an average rate of 76 pipe, or 1,216 linear feet, per day.

*Pouring the Pipe*

### Design of Pipe

Each pipe consists of a substantial steel structure encased in concrete. The steel structure comprises a watertight steel cylinder surrounded by a cage of reinforcing steel, the whole assembly being placed in molds and lined and covered with concrete. Heavy steel rings of special section welded to the cylinder form the ends of the pipes and the joints. The pipes were designed for various heads according to their location in the pipe line, a different amount of steel being used for each head classification. The heads range from 200 to 350 feet. Each pipe when completed is 16 feet long, has a wall thickness of 4½ inches, and weighs approximately 6 tons.

When the pipes are installed, the spigot end of one is placed into the bell end of the adjoining pipe, and the joint is made completely watertight by a rubber gasket which is placed in the groove on the spigot as the pipe is swung into position for laying. The ease with which the joint can be assembled, its flexibility, and the rugged construction of the pipe, permit rapid and economical installation, even under the most difficult laying conditions.

### Making the Pipe

The manufacture of the pipe consists of three principal operations: (1) fabrication of the steel structure; (2) pouring of the concrete; (3) final curing and storage. All the labor necessary for the manufacture of the pipe was obtained locally and supervised by a crew of specially trained men.

The steel structure of the pipe is fabricated by rolling steel sheets to the proper radius and welding them together longitudinally to form the cylinder. The steel joint rings, of special cross-section, are then welded to each end of the cylinder, and the finished cylinder tested hydraulically to prove its strength and water-tightness. This cylinder is then surrounded by a cage of reinforcing steel formed by winding steel rods spirally around a mandrel, the spacing of the rods being maintained by interwoven wires. This completed steel structure is then ready for encasement in concrete.

In order to complete the work within the prescribed time, 1,216 feet of pipe had to be produced per day, requiring the placing of more than 225 cubic yards of concrete each day and necessitating two separate concreting units.

The concrete was mixed in a central mixing plant provided with modern bins and batching equipment for the accurate control of the mix. All sand and gravel was delivered by truck from a local plant, and the cement was delivered in bulk cars from a Michigan mill. From the mixing plant a gasoline locomotive hauled the concrete to the pipe molds in 2-yard buckets, which were hoisted by a locomotive crane and dumped into pouring hoppers mounted on top of each mold. The rate of flow of concrete into the molds from these hoppers was controlled carefully. Each mold consists of an inner and an outer steel form erected vertically with the steel structure of the pipe between them held securely in exact position by special rings at the top and bottom. When the concrete was being deposited, the forms were continuously vibrated so as to assure the proper surrounding of the steel and the maximum density of concrete.

When all the molds in a concret-

ing unit had been filled, they were surrounded by wooden frames, covered with canvas, and steamed until the following morning. At that time the molds were removed from the pipe and set up in another section of the pouring bins. The pipe were then re-covered and steamed until the third day when they were tipped into a horizontal position and placed in the storage yard, where they remained until ready for delivery to the trench. During dry, hot weather, the pipe in storage was sprayed with water to improve curing. The placing and removing of the steel forms and tipping of the finished pipe was done by a locomotive crane, while a second crane was engaged for concreting.

## Quantities and Specials

The magnitude of this pipe-production project can best be appreciated by the quantities of materials involved. Approximately 12,000 tons of steel and over 30,000 cubic yards of concrete were required to manufacture the 10,000 lengths of pipe, all completed early in February, 1940.

An important and unusual part of this job was the large number of special pipe required. Several main-line gate-valves and cross-connections required the manufacture of special tees, wyes and reducers, which were all made of the same type of construction as the straight pipe, but in most cases were provided with flanged ends for connection to the valves or branch piping. Extra-heavy cylinders and reinforcement compensate for the openings in the pipe wall. Outlets for connections such as air valves or blow-offs were formed by special steel castings, flanged and drilled to A.W.W.A. standards and securely welded to the steel structure of the pipe. By means of such special pieces, valves and pipe were readily connected to the main pipe line in the field.

Because of the flexibility of the Lock Joint expansion joint, long-radius curves were easily made with standard lengths of straight pipe or with straight pipe having beveled spigot ends. Short-radius curves were formed by the use of special bands of the same type of construction as the straight pipe.

The pipe and specials were delivered to various points along the right-of-way by a local trucking company. The pipe were manufactured and delivered at such a rate as to continuously supply the four construction gangs engaged in excavating the trench and laying the pipe. Close cooperation in manufacturing and delivering the pipe by the Lock Joint Pipe Co., under the direction of L. G. Wilhelm, Superintendent, permitted the laying contractor to carry on his operations smoothly and efficiently.

*Laying the Reinforced Concrete Lock Joint Pipe*

The entire water-works project, including the new pumping station in Lake Michigan, is under the direction of Peter A. Kammeraad, Director of Public Service, Grand Rapids, with Consoer, Townsend and Quinlan, of Chicago, as consulting engineers for the preparation of plans and specifications.

***Specials Built with Connecting Pipes***

1. *Hand-writing the old style assessment roll*

2. *Hand-writing the old voluminous bill*

3. *Hand-posting tax receipts under old system*

SIMPLIFIED

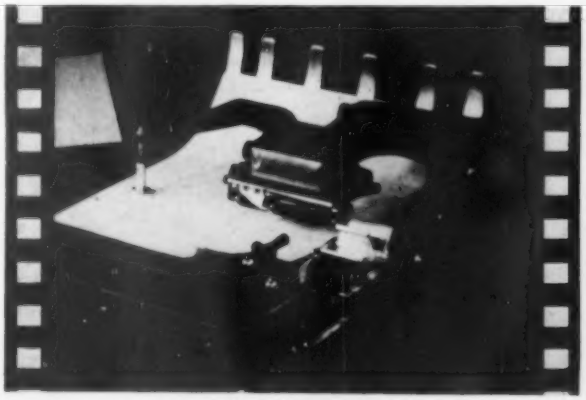
# Assessing and Collection Procedures

*By* ANTHONY C. PSOTA
**Assessor's Office, Smithtown, N. Y.**

AFTER considering the idea for three years, the Town Board of Smithtown, N. Y. (population 12,000), in April, 1940, installed an Addressograph to make and maintain the records of 4,000 described parcels and 35,000 lots, and to print the tax roll and 8,000 bills. The result, of course, was an immediate speeding-up in the performance of the work, with an end to errors requiring erasures on original records, always embarrassing.

Whereas formerly the entire year was spent in accumulating the assessment-roll data and three months in copying it in duplicate, the Addressograph now does the copying job in four days. One described-property book which took six to eight weeks to write is now copied in one day. The numerous errors in copying have been completely eliminated by placing the data on metal plates carrying name, address, property description, valuation, exemption, and a code used to cut down the complexity of extension and to insure accuracy.

In Smithtown there are ten school districts, three fire districts, six street-lighting districts, three highway districts, county tax, state tax, town tax and three village



4. 1940—*Addressographing the roll*

5. *Roll and bills quickly written from plates*

taxes. Every property in town pays taxes for the services rendered by several of these districts. Many adjacent properties pay taxes on the same group of services, making their total tax rate the same. Yet old methods required that the tax for each district be extended separately. With about 40,000 parcels, each paying taxes on an average of seven districts, the total number of multiplications ran to 280,000.

As there are twenty practical combinations of districts, it was decided to give each of these combinations a number called a code, and to figure a group tax rate for each of these combinations or groups of tax districts. The result is one computation for each parcel, instead of seven. In addition to this, the 40,000 parcels have been grouped into 8,000 parcels, so that actually there are now only 8,000 multiplications to be made in place of 280,000. In addition to reducing errors and preventing omissions of individual districts, the greater speed gets this extension work done in two weeks, instead of three months. Formerly the work of extending the taxes began on September 1, each year, first with two extra clerks, and after November 15, when the county and state rates are furnished, with three to eight additional girls required until December 1, when the books are sent to the Tax Receiver.

From December 1 to January 6, the Tax Receiver used to employ ten girls to write the 8,000 bills longhand in indelible pencil. Owner's name, property description and the taxes were written on both the first-half and the second-half portions of the bill. An original and two carbon copies were made for receipt and office copy. The bills, except for inserting the amount of taxes, are now made out in two days, being merely run through the Addressograph. The amount of tax is then written on the bills by pen and ink. Bill and receipt are mailed in window envelopes to the taxpayer, who either mails back the bill with check or presents the unit at the window. If mailed, the Receiver stamps the bill paid and mails it back to the taxpayer.

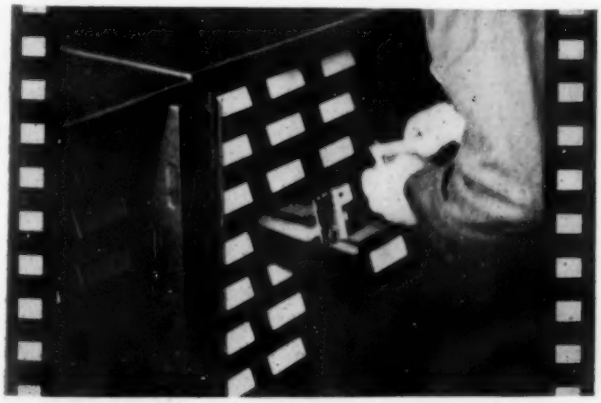
Posting the paid tax to the assessment roll has been simplified as follows: When the assessment roll is being Addressographed, a numbering unit in the machine automatically prints a consecutive number alongside each property description. As the bills are Addressographed, the same number appears on the three parts of the bill. Thus the Receiver *posts to a number*, instead of to a name and description, increasing posting speed by 80 per cent and greatly reducing the number of incorrect postings. The resulting advantages to both the taxpayers and the town are obvious, and indicated by the photographs.

Obvious also are the advantages of having the Addressograph used by both the Assessor and the Receiver, providing a common place for corrections. All the changes obtained by either official are made at once on the metal plates. This gives the Receiver a more up-to-date mailing list, more taxpayers receive their bills and more taxes are paid, with a possible lower tax rate as the final result. Such a result is rendered more likely by close watch of delinquent accounts. A "pivotab" attached to the top of the metal plate is made to indicate a delinquent account. At any time the plates can be run through the machine which selects the delinquent accounts from the paid-up accounts, imprints a notice or list and automatically re-files the plates in their proper sequence.

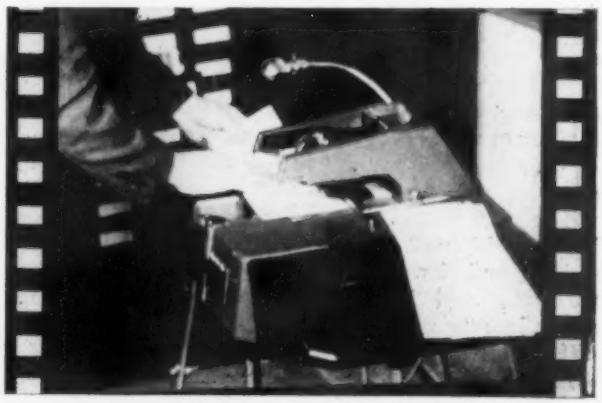
"We should have installed this system years ago," say the members of the Town Board, "and we are sure the Addressograph system will pay for itself in a short time, in convenience to the taxpayer as well as in money saved."

SHOTS FROM A DRAMA OF MUNICIPAL OFFICE MODERNIZATION

8. *Judge Bradley of Smithtown, N. Y., likes the clarity of this new bill*



6. *"Bill lost? Get the taxpayer's plate and"*



7. *"Make a new bill in a jiffy"*

# Preparedness in Water Supply

## *Can Sabotage or a Single Explosion Cripple the Vital Parts of Your City's Supply?*

*By* CHARLES HAYDOCK
**Consulting Engineer; and Chairman,**
**Economic Trends Committee of Pennsylvania Water Works Association**

WAR is frequently a major disaster for practically everyone, including the victors, as was shown by the World War. In the present war, we are seeing cities destroyed, entire peoples dispossessed or subjugated, and standards of living lowered. Let us be so well prepared to defend ourselves that we shall be immune from danger of successful attack either from without or within.

The status of many industries is profoundly altered in the change from peace to preparedness, or war, but water supply is not one of these industries, since it is equally essential under all conditions. People must have water, and many industries use large quantities of water, which for the best results must be of high quality. No modern city can exist without adequate water supply. It does not readily lend itself to decentralization. Many communities have but a single source of supply, a single purification plant, a single pumping station.

If the water supply of a community were impaired, the city might soon become practically uninhabitable, or if the people continued to live in the city and drank the polluted waters which might be the only ones available after the main supply had been damaged, pestilence, one of the dreaded Four Horsemen, would soon ride through the community, probably in no more than the normal period of incubation of the water-borne diseases.

The water-works industry thus has a position of singular responsibility and importance in preparedness, and if we should be drawn into the war, we should have still greater responsibilities.

During the World War, the aeroplane was just about well started, and no hostile aeroplane has yet flown over the United States. Water works are particularly vulnerable. In many cases, they are incapable of concealment or camouflage. All who have flown extensively will recall how easy it is to pick out water-works structures, even when flying at a considerable height.

### Answer These Questions

If your water works were damaged by sabotage or attack, what would you be able to do for the community? Would it be possible for a single explosion completely to disable your system, and if so, how would you go about repairing it?

Have you local storage to provide water supply to fight conflagration that might be caused by hostile act? Are there valves sufficient to isolate a damaged unit without draining the reserve supply? If you use electric energy for pumping, have you more than one line entering your pumping station, if possible from a different circuit?

Have you an adequate reserve of expendable materials and supplies to carry over a reasonable period of interruption? Would it be possible for you to increase your materials and supplies inventory at a reasonable cost, and have on hand such supplies as might be needed in the event of disaster? If you had such supplies, would you store them in or with your major structures, where disaster might destroy both? If your purification plant were damaged, what could you do to prevent the spread of disease, and still serve the public with enough water to permit the normal functioning of your community?

Do you know your neighboring water-works systems? What are their problems and resources? A competent staff is an important asset of any enterprise. If you should lose any of your key men, how would you get along? Could you help your neighbor, or secure help from him?

Are there other water-works systems nearby which might render supplementary service to each other in emergency or disaster? Are there any private supplies, the quality of which is such that the supplies could be used by the community in emergency?

Probably not all of these inquiries are applicable to any one system, but, equally probably, some are applicable to every system. These are some of the things which a water-works operator must think about today, in addition to his regular duties, because we must always keep the water running from the consumers' faucets, and that water must be safe to drink and in ample volume for the requirements of the community.

### National Defense and the Cities

**The United States Conference of Mayors (730 Jackson Place, Washington, D. C.) is giving special attention to the responsibilities and problems that are being thrust upon the cities as the National Defense Program gets under way. In its bi-weekly bulletin, *The United States Municipal News*, the Conference is summarizing developments, national, state and local, of special interest to municipal officials.**

**The July 15 issue calls attention to an order issued on July 1 by Colonel F. C. Harrington, Commissioner of Work Projects, under the new 1940-41 WPA regulations*, whereby the so-called "national defense" WPA projects sponsored by cities (airports, armories, roads and streets of military importance, etc.) are exempt from the usual 25 per cent sponsors' contribution provision as well as the limitation of $100,000 on building projects.**

* *See The American City, July, 1940, p. 5.*

# Long-Term Financial Planning for Cities

## *Operating Requirements—Debt Services—Capital Outlay—Social Security*

*EXCERPTS from a report submitted in June, 1940, by the Committee on Long Term Financial Planning of the Municipal Finance Officers' Association of the United States and Canada; George M. Link, Secretary, Board of Estimate and Taxation, Minneapolis, Minn., Committee Chairman:*

A REVIEW OF MUNICIPAL CHARTERS, even the latest, does not reveal any justification for the belief that there has yet been full realization of the importance of comprehensive long-term financial planning for all municipal needs. In fact, there seems to be a disposition to believe that long-term planning has been carried to completion when such planning comprehends current and capital projects.

Every experienced municipal official knows that the financial obligations of a community that can be described as "long-term" are not limited to capital projects any more than are all pay-as-you-go projects limited to operating projects. The financing of outstanding bonds, whether serial or term, is a long-term matter, particularly if refunding either before or at the time of maturity be resorted to. Likewise, the financing of public relief from borrowed funds creates a financial problem which is long-term in its effect.

The obligations which have, however, most profoundly affected financial requirements both for current and for long-term purposes are those that aim at greater social security: retirement allowances for governmental employees; mothers' pensions; old-age pensions; unemployment insurance; unemployment relief; and many others, some of which are still in the planning. To the extent that the expenditures of today for these purposes throw a financial burden on the future, they are involved in long-term financial planning to as great an extent as are capital projects, and perhaps with even greater justification, since the financial burdens are much less evident to the casual investigator. There is no sound logic in insisting on the careful preparation of a long-term program for the financing of a school building or a garbage-disposal plant, either of which will be of use for the next forty or fifty years, and ignoring the expense of retirement allowances to municipal employees who will no longer render service to the municipality but whose retirement allowances will be a burden on the taxpayer for years to come. Money spent on capital projects will provide something of value in the form of service during the period of financing and probably for years thereafter. Expenditures for retirement or social security allowances that are not paid out of accumulated reserves are expenditures for benefits that the public received in the past and to a great extent are to be financed by those who received none of those benefits. . . .

There should be a determination of the amount of revenue that would be available for operating purposes after apportioning from the total the amounts necessary to meet accrued obligations for bond issues, mandatory obligations for social security, and necessary expenditures, if any, for capital outlay and repair costs. "Pay-as-you-go" advocates insist that capital outlay costs should be met entirely from current levies or from resultant accumulations. Capital repairs as a matter of course may, directly or indirectly, be included with operating costs. Whichever procedure is followed, the need of planning cannot be avoided. It is quite probable, in fact, that the pay-as-you-go policy of financing capital projects calls for more planning, particularly long-term planning, than does the policy of borrowing.

On this matter of pay-as-you-go, it might be well to recall the admonitions of financial experts that during periods of prosperity governmental agencies should conserve their credit in order that during periods of industrial depression they can use that credit to create employment which, to some extent at least, will offset reduction of employment in private industry. Such a procedure would mean municipal pay-as-you-go during periods of prosperity such as the twenties, and municipal borrowing during periods of depression such as the thirties. It requires no feat of memory to recall that with too many of our American cities actual practice was just the opposite of the above. Unwarranted borrowing was carried on during the twenties, with the direct result that little or no further borrowing was possible during the thirties. To make matters worse, during these latter years some of our cities have systematically failed to even attempt to meet maturing bond requirements, preferring the doubtful expedient of bond refunding instead of the sound though painful alternative of an adequate tax levy.

Perhaps for the purpose of meeting such a situation, the charter of the city of New York provides for a "capital accrual fund." This seems to have been designed for the purpose of building up reserves to be used to finance capital improvements and so obviate the necessity of including them in some future long-term capital program. To that extent the creation of such a reserve promotes the laudable pay-as-you-go idea for capital expenditures.

The State Planning Board of Massachusetts, as reported by this committee in 1939, is going one step further by recommending that during good years a "credit reserve" be built up by depositing with the State Treasurer a certain percentage increase in its annual tax levy, such reserve to be made available in "bad times to permit maintenance of normal activities without the need of an increased tax rate." There can be no doubt as to the efficacy of such a procedure, although it does have the handicap of creating a large invested reserve which, like most similarly placed reserves, might turn out to be nothing but a book credit when most needed.

In contrast to the credit reserve that would be built up under the Massachusetts plan, is the bonded debt reserve which would be built up if bond issues were restricted during prosperous years. The first would result in a large reserve in cash or investments; the second would be a pure credit reserve, cash accumulations being entirely lacking. For that reason, the latter appears to possess the greater merit.

### Administrative Machinery

A review of available material relative to the procedure followed in municipalities where long-term financial planning has been attempted, indicates that to a very great extent such planning has been a cooperative movement, private interests joining with public bodies—more particularly with planning bodies and financial officials—in

formulating a program which in the light of past experience and present conditions will justify a proposed program for the current year, as well as serve as a basis for similar programs for subsequent years.

With one possible exception, no evidence has been found that any such procedure is required of any of our cities either by charter or by statute. Undoubtedly conviction as to the wisdom of such legislation has not yet crystallized to the point of having materialized as a definite legislative proposal. It is believed that whenever definite convictions can be aroused as to the importance of long-term planning, there should be inserted into our state and/or local laws provisions relative to long-term planning which are as mandatory and as definite as are those relative to current operating requirements. . . .

Since a large number of our cities of today have planning authorities whose duty it is to study the needs for capital projects, any such authority might well be vested with the responsibility of preparing the necessary long-term plan for such projects. In order that there should be included in the long-term plan the requirements for those other purposes which have been heretofore mentioned, the chief financial officials of the municipality should be authorized and required either to cooperate with, or to supplement the studies of, the planning authorities in order that the program developed might comprehend all requirements other than those that are fully financed from current revenues.

One of the chief criticisms that can be made of past attempts at long-term planning is that they were not continued. This was partly due to the much greater difficulty that exists in the preparation of planning for long-term needs than exists in the case of current operating needs. But to a much greater extent that failure is due to the absence of legal requirements that an expenditure program must be prepared for long-term needs, as well as for current operating needs, than to any other cause. Governmental officials are human beings with the common failing that prompts the avoidance of any act that is not clearly mandatory. Hence, if long-term planning is to become a continuing procedure, legal provisions should be provided that such planning shall be done, specifying clearly as to what officials shall carry that responsibility.

It is of equal importance that there be specific provision as to responsibility for determining to what extent any such long-term program shall be carried out. This duty should be imposed upon the chief governing body of the municipality, which should be required to give this long-term program the same careful consideration that is required in case of current needs, modified to the extent that long-term needs cannot be based on requirements for fiscal periods with the same exactness as is true of current requirements.

### Conclusions

The following conclusions are submitted by the Committee:

1. The term "long-term financial planning" is to be understood to refer to all governmental obligations which will require the use of future revenues to finance obligations incurred during prior fiscal periods, as well as those to be incurred during future periods.

2. Municipal charters should definitely designate an official body to formulate annually the long-term financial program for the municipality, which body should be empowered and obligated to prepare such a program.

3. The charter should provide a performance schedule, stipulating the routing of the long-term program both as to time and as to destination or destinations.

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# Land-Use Map-Making for Zoning and Planning

Chicago Regional Planning Association
Burnham Building Chicago, Illinois

MAKING A SIMPLE FORM OF PRESENT USE MAP
For Zoning and Planning

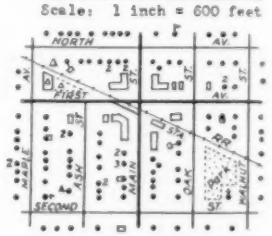
The zoning laws of Illinois, like those of many other states, require consideration of the existing use of buildings and land when a zoning ordinance is drawn or amended. To do that from memory or by field inspection is not enough. A permanent, dated record should be made in the form of a present use map. By following the suggestions given below, a simple form of use map can be made by marking on a printed map (which later may be traced) the approximate location and general class of each use. Where greater detail is needed, a special record may be made. Such a map is necessary to properly decide the kind, size and number of zoning districts after giving due consideration to other existing conditions and probable needs for the next 10 or 15 years. After adoption of the ordinance or amendment, the use map should be carefully preserved as part of the evidence showing the reason for each district and is made use of in later years whenever proposals to vary or rezone come up, or in case of court action. Any zoned community not having a use map should make one.

| SYMBOLS FOR Small Scale Maps | SYMBOLS FOR Larger Scale Maps | CLASSES OF USES |
|---|---|---|
| | | RESIDENCE BUILDINGS |
| • | ○ | - One family |
| •2 | ○2 | - Two family |
| •6 | ○6 | - Apartment, 6 living units |
| | | SCHOOLS AND CHURCHES |
| | | LIMITED BUSINESS USES IN CONNECTION WITH RESIDENCES |
| ▪ | ▭ | - If in main building such as doctor's office, tourist home, hair dresser, dancing school, etc. |
| •▭ | ○-▭ | - If in accessory building or yard such as a small hatchery, nursery, wood working shop, retail stand, storage of trucks, construction equipment or building materials, etc. |
| | | BUSINESS USES |
| ▯ | ▯ | - Scattered stores, service stations, funeral homes, greenhouses, etc. |
| ▭ | ▭ | - Groups of stores such as in central business area. |
| △ Building or lot | | INDUSTRIAL USES such as building material yards, coal yards, bulk oil plants, grain elevators, contractor's yards, manufacturing, etc. |
| ▭ Large building | | |
| ▭ Large area actually in use | | |

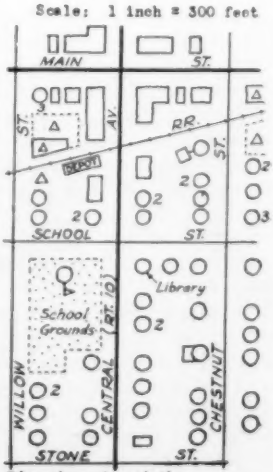
SPECIAL USES, such as libraries, parks, forest preserves, athletic fields, golf courses, hospitals, institutions, cemeteries, water works, municipal garbage incinerators, dump areas, sewage disposal plants, and other public or semi-public buildings, locate and name.

SAMPLE MAPS

Scale: 1 inch = 600 feet




Scale: 1 inch = 300 feet




June 1940

*Reproduced by courtesy of the Chicago Regional Planning Association*

# Water Treatment

## *Iron Removal and Zeolite Softening of a Hard Mid-Western Water at Rochester, Ind.*

*By* JACK GORDON
**Superintendent, Filtration Plant**

THE water supply of Rochester, like so many other Mid-Western supplies, not only is very hard but also contains an objectionable amount of iron. It is obtained from two 26-inch Layne-Northern gravel-packed wells, each 100 feet deep, having a capacity of approximately 800 gpm. The water contains 16 grains per each gallon of hardness and 2.6 ppm of iron.

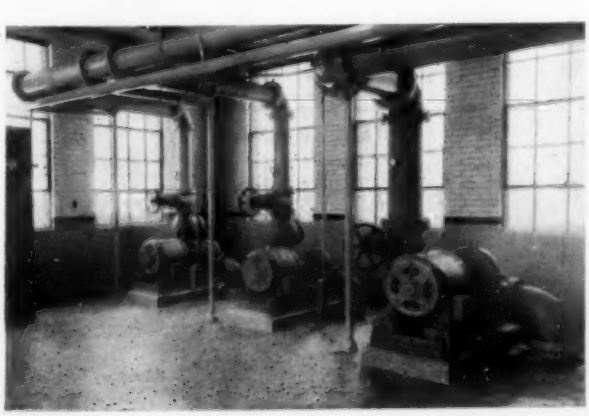
Previous to the installation of the new water-softening and iron-removal plant, complaints from customers were very common. Iron stains were especially objectionable and, of course, the hardness made the water difficult for washing and also caused scale in industrial boilers. A preliminary study of the problem was made several years ago but, owing to other expenses which would be incurred for other much needed improvements to the water system, the work did not get under way until 1939.

After a thorough study, the following treatment was recommended: (1) aeration of all the water, followed by settling and filtration to remove the iron; (2) softening four-fifths of the water through zeolite water softeners; (3) mixing the softened water with one-fifth of the hard but iron-free water, thus furnishing an iron-free water with only 3 grains per gallon of hardness. Aeration of all the raw water removes most of its free carbon dioxide content and simultaneously raises the pH value. In addition, the use of an alkali silicate feed was recommended in the softened water to raise the pH value somewhat higher so as to protect the distribution system against corrosion.

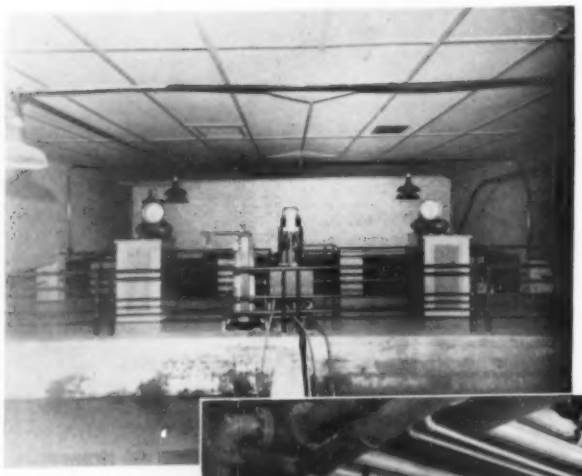
### The New Plant

The 700-gpm water-softening and iron-removal plant as installed is in accordance with the recommendations of the engineers. The water is aerated in a cylindrical steel shell and coke tray type of aerator, 10 feet in diameter and 6 feet high. It is mounted directly over one end of the reaction basin. All the water from the two well pumps passes through this aerator.

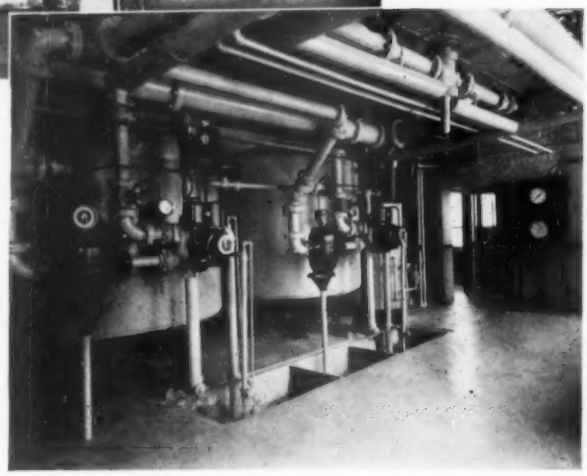
From the aerator the water drops into the reaction unit, a concrete basin measuring 12 x 24 feet by 10 feet deep. This affords a sufficient detention period for the complete oxidation of the iron, and also for most of the precipitate to settle out. The basin is provided with draw-offs, so that accumulations of iron sludge may be removed periodically. The basin is also equipped with a float switch, so that the level in the basin controls the starting and stopping of the deep-well pumps. The aerated and settled water from the reaction basin then flows by gravity to the two sand filters. These are 12 x 15 feet by 10 feet deep, built of concrete, and are



*The Two Worthington 8-Inch Service Pumps and 12-inch Wash-Water Pump*



*The Two Semi-Automatic, Gravity-Type Filters at the Rochester Water-Treatment Plant*



*The Two Fully Automatic Permutit Zeolite Water Softeners*

semi-automatic in operation. They are provided with rate-of-flow controllers and indicating and recording rate-of-flow and loss-of-head gages. These filters are the Permutit push-button automatic type. When the starting button is pushed, the cycle is started, cutting the filter out of service, back-washing it at the required rate for the required period, re-washing and then automatically returning the filter unit to service. This is particularly helpful, in that the back-washing and re-washing are carried out exactly the same on each cycle, which is not always the case with manual operation.

The clear filter effluent, free from iron but still hard, then flows by gravity to the concrete clear well. This measures 21 x 25 feet by 12 feet 4 inches deep and is the suction pit for the two Worthington 8-inch service pumps and the 12-inch back-wash pump.

A Wallace & Tiernan Type MSEM chlorinator is installed, so that chlorine can be applied either before or after the water is filtered. The clear chlorinated iron-free water from the clear well is picked up by the service pumps and split into two streams by an automatic bypass proportioner. This so regulates the flow that one stream is always four times as large as the other.

## Zeolite Softening

The larger stream is completely softened by passing through a battery of two Permutit fully automatic zeolite water softeners. These steel cylindrical units are 8 feet in diameter and 6 feet high, filled with Decalso, a white high-capacity zeolite. The water softeners are completely automatic. At the end of a unit's softening run, of 100,000 gallons, it is automatically cut out of service by the 3-inch Trident meter, and then by means of the electrically operated valve it is successively back-washed with the required amount of water for the proper length of time, automatically filled with brine, then rinsed with the required amount of water and automatically returned to service.

The stream of completely softened and iron-free water is then mixed with the stream of iron-free hard water by the automatic bypass proportioner. As this is in the ratio of 4 volumes of completely softened water to 1 volume of hard water, the resultant mixed effluent has a hardness of 3 grains.

The alkali silicate is added to the softened water by means of a duplex type chemical feeder. This feeder, by means of a pressure differential obtained by an orifice plate, feeds the alkali silicate solution in proportion to the flow of water. The entire system from the clear well on is under pressure so the mixed effluent goes directly to the distribution system without further pumping. An elevated storage tank of 150,000 gallons capacity floats on the line. It will be noted that the first part of the treatment from the aerator to the clear well is by gravity flow, while the second part of the treatment is under pressure.

## Results—Costs

The results of the operation of the new plant have been very satisfactory. The contrast between the raw water with a hardness of 16 grains per gallon and 2.6 ppm of iron, and the softened water with a hardness of only 3 grains per gallon and an iron content of less than 0.1 ppm is so marked that there have been many compliments received from consumers.

The entire cost of the waterworks plant and elevated tank was approximately $80,000. Their construction was made possible by a PWA grant and the sale of water-revenue bonds. The plant was designed and construction superintended by Phelps & Peck, Inc., consulting engineers, of Michigan City, Ind. The B. W. Handler Construction Co., of Chicago, was the general contractor, and the elevated tank was erected by the Pittsburgh-Des Moines Steel Co., of Pittsburgh, Pa. The Permutit Co., of New York City, furnished and erected all the softening equipment.

**See Section 4 on Water Supply and Purification, in the current issue of The Municipal Index.**

# Sanitary Engineering in a City Health Department

## *The History of the Memphis Health Department Through Ten Years of Expanding Activities*

PREVIOUS to 1920, the Sanitary Division of the Memphis, Tenn., Health Department was concerned primarily with nuisance complaints, cleaning of alleys, and vacant lots, and other similar duties. A Division of Chemistry and Bacteriology handled the food and milk program. In 1920, a sanitary engineer was employed to initiate a malaria mosquito control program. It was not until 1929, however, that the sanitary department was organized into a Bureau of Sanitary Engineering, and all sanitation work including the food and milk program was placed under the direction of a sanitary engineer.

The Bureau of Sanitary Engineering in the Memphis Health Department has grown from an organization of 24 inspectors in 1929 to 45 in 1940. The growth is not only in numbers, but in a broadening of interest and activities. During that period, courses in sanitation and bacteriology were conducted for the inspectors, and the men who showed ability in these courses were given responsibility for special activities and programs. Divisions with directors had been formed to carry out better the several major branches of sanitation activities. A system of record-keeping was set up so that the work of the inspectors could be systematized, orders could be followed out, and credit could be given for the work done as well as having an opportunity to show recorded progress.

### Educational Program

An intra-departmental educational program was initiated in 1929 to supply inspectors with fundamentally sound training in the principles of sanitary science. None of the men had had any school training in sanitation before joining the Department, and only a few had had any experience. An attempt has been made each year to have classes in several of the major subjects and to give examinations. Certain reading and reporting was also required. By 1933 this intra-departmental educational program had developed into a cooperative school with the State Health Department acting as supervisor. Personnel from the State Health Department reviewed each subject, gave the examination and corrected the papers. Certificates are granted by the State Health Department. In 1933 twenty men had received certificates and, to date, that number has increased to thirty-seven.

Advantage has been taken also, in recent years, of fellowships granted by the State Health Department, for the inspectors to attend the University of Tennessee and Vanderbilt University for special three-month courses. Those who took the course were drafted as instructors for the Department school work, and a great deal of the material received by these men at school has been incorporated into the courses given in the Department.

### Organization of Divisions

There has been a gradual evolutionary process in the Memphis Health Department in organizing the Bureau of Sanitary Engineering into Divisions, and the selection of directors as well as technical assistants has been based largely on the marks made in the school work. The men receiving the highest grades were found to be the logical ones for directing the activities of carrying on the special responsibilities. However, a number of changes were necessary before the right men were fitted into the tasks that they were best fitted to carry out. Some of the men were found to be excellent directors, and others worked best by themselves. As the Bureau became organized, salary schedules were developed by positions rather than individuals.

### Department Library

The beginning of a Department library through the voluntary donation of 25 cents per month by all inspectors started in 1929. The first real progress, however, followed the drafting of an index system in 1930 with the cataloging done with CWA help in 1933 and 1934. Some 12,000 articles on public health subjects from reports, bulletins, and magazines, put out by state, Federal, city, and specific organizations, were indexed, catalogued, and filed. An inspector was permanently assigned in 1935 to serve as librarian, as well as to write newspaper articles about the Health Department program. Other additional work was assigned to him as the program developed.

This was the beginning of a library in the City Hall in Memphis, and finally developed into the present well-established Municipal Reference Library, serving all departments under the direction of Miss Louise Gambill, Municipal Reference Librarian.

### Milk Control

The Standard Milk Ordinance was adopted in September, 1928, and was inaugurated with the first grading announcement in June, 1929. Early in 1934, the Division of Milk Control, which had been carried on largely under the direction of the Bureau Director, was set up with a Division Director.

An ice-cream, or "Frozen Desserts," ordinance, to control the pro-

duction and manufacture of ice cream, which included the grading of frozen desserts, was adopted in 1936. The enforcement of this ordinance was begun immediately after the adoption, but was limited first to the sanitation of non-pasteurizing ice-cream manufacturing plants, especially those located in miscellaneous food establishments. This sanitation program included the proper design and construction of two rooms in most cases, one for freezing and mixing, and one for washing and disinfection.

### Food Control

The first effort to develop a Division of Food Control was made in 1933, using three food inspectors and part-time personnel from the general sanitation program. The following year, a full-time division was set up, with a director. The record system and general policies were given an overhauling, and considerable progress was made in shaping this division on a firm foundation.

A meat ordinance, patterned after the regulations of the Bureau of Animal Industry of the U. S. Department of Agriculture, was passed in 1936. As a result of the passage of this ordinance, all the country butchers discontinued country slaughtering, and a Memphis Butchers' Abattoir was organized and built. This completed the major steps in working out a meat-control program. This one central slaughtering place replaced approximately 75 insanitary unsupervised country places.

### Other Programs

The milk and food control programs outlined above are but two of the many important and varied activities of the Sanitary Engineering Division of the Memphis Department of Health, and were selected as typical. Other activities include the control of swimming pools, quasi-public water supplies, malaria, housing, stream pollution, industrial hygiene, and typhus. Readers interested in further details of any of these programs can secure ful linformation from Alfred H. Fletcher, Sanitary Engineer, Department of Health, City Hall, Memphis, Tenn.

# Paving Economy

## *St. Louis Prolongs the Life of Bituminous Streets by Mat Coating after Sealing Cracks with Cut-Back*

*By* FRANK J. McDEVITT
**Director of Streets and Sewers**

MOST municipalities manufacture several types of hot bituminous mixes at their asphalt plants, which of course adds to the cost of operation. St. Louis, Mo., uses one mix only for both patching and resurfacing. Over 3,000,000 square yards has been used in salvaging old street bases during the past six years at an average cost of 50 cents per square yard. With the exception of some 400,000 square yards installed under CWA, all work was done by city forces out of regular budget funds.

Climatic changes have caused deterioration in many improperly laid sheet-asphalt streets. Cracks have developed, permitting moisture to enter, and freezing causes expansion, resulting in added deterioration. The situation has been further aggravated by the use of low-penetration or hard asphalt plus a too liberal supply of dust in the mixture. Many such streets in St. Louis were so badly cracked that a reconstruction job with tax bills for assessments seemed inevitable.

The Bituminous Section of the Department of Streets and Sewers has solved the problem of prolonging the life of such streets with a mat coating. This consists of applying a liberal coating of cut-back asphalt to the cracked surface and then covering the surface with a thin layer of angular gravel, free from fines, which is immediately compacted with a 10-ton roller. The cracks are filled with gravel which is bonded in place by the asphalt, thus providing an effective seal against moisture and prolonging the life of the pavement for many years. Some complaints were received about changing the character of the paving, but when the procedure was explained these complaints disappeared entirely. Traffic loosens the gravel, and every few weeks the surplus gravel must be cleaned up and carted away.

All municipalities are faced with the necessity of balancing the budget and at the same time making much-needed street repairs. The days of constructing streets completely or in part by tax bills is definitely over. That being the case, the following average costs may be of interest to paving officials. These figures cover labor and material only, and exclude all supervision, overhead and contractor's profit. The figures are for work done in St. Louis over a period of time, and contrast the cost of the mat coating with resurfacing projects.

| | |
|---|---|
| Mat coating over cracked sheet asphalt streets | $.10 per sq. yd. |
| Anti-skid resurfacing over cracked sheet asphalt streets | .25 " " " |
| Anti-skid resurfacing over worn brick or granite block streets | .50 " " " |
| Anti-skid resurfacing, including 3-inch binder course substituted for wood blocks | 1.00 " " " |

These prices will vary with the cost of raw materials, which amounts to from 60 to 75 per cent of the total cost. If dolomite, which is used extensively in St. Louis, is not available, some equally hard, tough stone may be substituted.

### A "Shovel-Leaner" Replies

*(From the Survey Mid-monthly)*

**"If they say we're shovel-leaners,**
**Not worth our bread or beans or wieners,**
**Then bridges must be misdemeanors**
**And highways only built for fun—**
**From Bend to Mount Hood's icy shoulder**
**We've leaned on stump and bush and boulder**
**So that our kids, when they grow older**
**May enjoy the things we've done—**
**Say! Here's where Pop leaned on his tools**
**And dug out a coupla swimming pools,**
**Airports, reservoirs, bridges, schools—**
**That amazing, lazy son-of-a-gun!"**

***Unnamed WPA worker, Portland, Ore., in Bulletin of Labor's Non-Partisan League.***

# High-Speed Removal of Street-Car Track

## *Top Removed with One Cut, and Base Left in Place, Minimum Paving Required to Restore Uniform Surface*

A RECENTLY developed procedure for removing abandoned street-car rails from paved streets has several interesting features. Because it permits the removal of the rails without breaking the adjacent pavement, it is particularly valuable where the asphalt or macadam paving has been laid flush with the top of the rail. Thus only a strip the same width as the exposed surface of the track need be repaved.

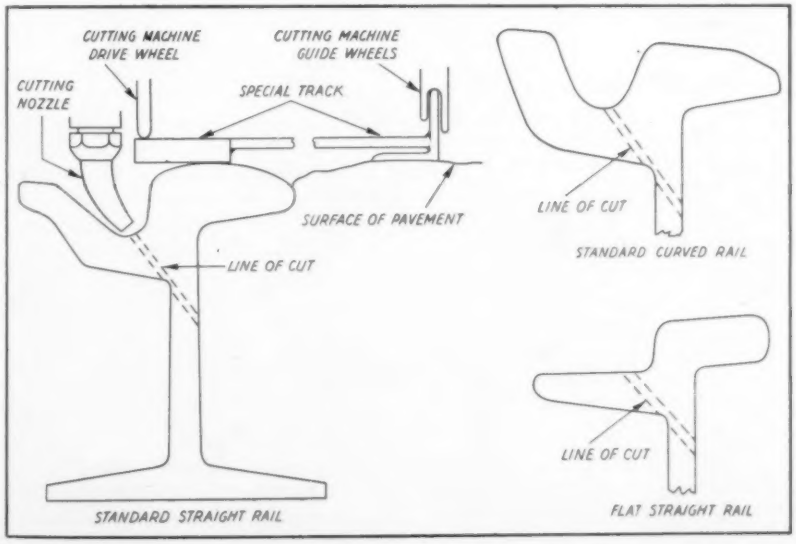
A single cut is made at an angle along the groove of the rail, so that the top of the rail is severed from the web in two longitudinal sections. To accomplish this, an Oxweld CM-16 cutting machine is used with a special track, shown in the sketch. The cutting blade is equipped with a bent nozzle or bevel-cutting attachment.

The special track for the cutting machine is rectangular in form, consisting of 6-foot lengths of ½- x 2-inch flat stock and 1½-inch angle-iron. These are joined together at each end by a 3/16- x 1-inch steel strip. In use, the driving wheel of the cutting machine rides on the 2-inch-wide bar and the other two wheels are guided by the angle-iron. Pins are provided at one end of the track, and slip-fit sockets at the other end. This feature permits the joining in alignment of two or more sections of track so that the cutting operation can be carried on continuously.

In preparation for machine-cutting, a hand-cutting blowpipe is first used to cut a notch several inches wide out of the top of the rail to determine the proper position and angle for setting the machine-cutting blowpipe and cutting machine. The special track is then placed in position with the long flat section lined up on top of the outside flat portion of the rail. The angle-iron section of the track rests on the pavement outside the rail.

Next, the cutting machine is mounted on the special track so that the bent nozzle of the cutting blowpipe is over the groove in the rail and pointing at an angle of approximately 45 degrees toward the outside of the rail. Both track and cutting machine must be positioned carefully so that the line of cut will be directed through the groove and web of the rail, with the kerf passing through the juncture of the top surface and inside the web, as shown in the sketch. When properly positioned, the blowpipe is lighted and the cutting machine is started.

As cutting progresses, the operator and helper remove the section of track over which the machine has passed and attach it to the opposite end of the second section, so that the cutting operation is continuous. Wherever necessary, fishplate connections are severed with the hand-cutting blowpipe. The top of the rail is removed with a pinch bar as scrap material. The rest of the rail is left in the roadbed and covered.




*Sections of Three Types of Rail, Showing the Location and Direction of Cuts*

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## *Both Presidential Candidates Advocate Federal Aid in Slum Clearance*

ALTHOUGH THE REPUBLICAN NATIONAL PLATFORM is silent on the housing problem, the Republican candidate for the Presidency is on record as favoring Federal aid to slum clearance and other social welfare projects. Discussing useful public works in his article, "We the People," in *Fortune* for April, 1940, Mr. Willkie wrote:

"The Government will not always be able to find such good investments as the roads turned out to be; and sometimes, in the very nature of its trust, the returns on its investments must be intangible returns—as is in the case of hospitals, for example. Yet good economic investments can be found. Slum clearance, for instance, should be carried much further than it has been. Slum clearance raises the standard of living of the families involved. It therefore raises property values and helps business in the surrounding areas."

President Roosevelt's well-known stand in this matter was reinforced by the following plank in the Democratic National Platform adopted at Chicago last month:

"We have launched a soundly conceived plan of loans and contributions to rid America of overcrowded slum dwellings that breed disease and crime, and to replace them by low-cost housing projects within the means of low-income families. We will extend and accelerate this plan not only in the congested city districts, but also in the small towns and farm areas, and we will make it a powerful arm of national defense by supplying housing for the families of enlisted personnel and for workers in areas where industry is expanding to meet defense needs."

# Boon or Boomerang?

## *"Dream Cottage" Is Economic Nightmare to Small Towns*

*By* RONALD HUNT

TODAY the fellow who works on a drill press can own a pretty little home in the suburbs almost as easily as buying a car on the installment plan. He's doing it too, on a mass scale, and low-cost housing is probably the dominant factor in decentralization.

A step in human advancement, no doubt. Yet, it has brought with it a problem—in failing to pay its way—which may not only offset the social value of low-cost housing in many communities, but actually threatens some municipalities with bankruptcy.

Already alarmed at its rising tax rate, the southern Connecticut town sees the $4,000 home owner paying $112 into the tax coffers—and taking $200 out. Or maybe more, for if there are three children, it costs the town $100 apiece to keep them in school, not to mention the annual costs of police and fire protection, sewerage and other municipal costs.

Add to this the censure of "better class" home owners who resent the depreciating proximity of their low-cost neighbor and you have the picture.

### Agitation in Bridgeport's Suburbs

As a typical retail trading area, let's take a look at Bridgeport, Conn., manufacturing city of some 147,000, augmented by half a dozen townships of 5,000 to 20,000, where many of its workers have gone to live.

Stratford, with its 28-mill tax rate and few large taxpaying estates or industries, has just drafted a law which increases the floor area requirements in new homes. Further, it has put teeth into the building code. The successful petitioners were motivated by no broader civic-economic spectra than the fear that a proposed low-cost housing development would toboggan their own land values.

In Fairfield, owners of swanky homes have all but taken to the courts in their efforts to prevent "speculative" builders from providing homes within the reach of the factory, store and office wage-earner. The town is blessed with both industry and big estates—good tax sources. But again, the vigilant property owners' associations were formed by middle-class residents who sought, justifiably perhaps, to "preserve the residential character and property values" of their neighborhoods.

Trumbull, another suburb, is dickering with Bridgeport authorities for a change of boundary line, so she can rid herself of a section from which the tax income fails to pay for the road improvements, schools and services required there. In this case, proponents are less concerned with private land values than with future stability of the town.

Best luck on invitations to industry is being had by Milford, just in New Haven County, but part of the Bridgeport trading area. An electric-motor firm is planning to build here—and are the town fathers happy!

The low-cost housing problem is not new in southern Connecticut. Along the miles of shorefront are hundreds of cheaply built homes, many valued as low as $1,000. At present an acute school problem exists. On one little street with six homes aggregating $240 a year in taxes, it was found that a dozen children went to school. That costs nearly $1,200! Yet when Fairfield County towns pass further zone requirements, the developers will push on to Milford, recent option inquiries indicate.

Westport, a strictly residential community, wants neither industry nor cheap housing. So devoted has the town been to preserving its residential atmosphere that potential industrialists and builders have been dissuaded from locating there. With "AA" zoning and a new building code, low-cost housing has about as much chance in Westport as a Frenchman in Flanders.

### What to Do?

But low-cost is here to stay. In one town, building jumped $400,000 in the past year. Two out of three permits were issued for homes costing less than $4,500. There is a demand for more of them. And if they don't pay their way—what to do?

Trumbull is frankly trying to shed the burden. Milford is a-wooing manufacturers. But Fairfield's and Stratford's privately sponsored building and zone regulations, aimed at driving the low-cost builder away, do not attempt to solve the problem.

We cannot eliminate the "liability" without defeating the purpose of low-cost housing, through which millions have been enabled to improve their living conditions. We must either match it with income or make some other adjustment.

Someone has suggested a special school tax, since this item appears to be the primary deficit cause.

Another idea is the establishment of a sinking-fund against the day when the low-cost community *must* have a schoolhouse.

In Connecticut the periodic reassessment required by law every decade may help temporarily, as the tendency to assess for 100 per cent rather than 80 per cent increases.

Almost every extended discussion of this problem today will turn political. New England, pilgrim-bred philosophy, "Pay as you go," is in the local resentment of low-cost homes that become town liabilities. The summation of a liberal (and the low-cost home owner) is: "Give me sufficient wages and I will build a $7,000 house. In the meantime, let those pay who can."

Low-cost champions declare the economic void is justified by raising of the American standard of living. Fine altruism, but somehow the middle-class home owner (who foots the bill) fails to see it that way.

We might have to look to national legislation, which bore the FHA, to set a minimum low for an insured mortgage. The opposite is the current tendency.

There are many unexplored tenets—factors of efficient government, local trading, etc.

It may be that three children can eat enough brannies or save enough box tops or something to make up in taxes for their school-board deficit. We don't know.

So, we have a political problem. More important, we have an economic and a social problem. And nobody has yet offered to solve it.

# Comments on the Foregoing Article

## *By Thomas H. Reed,*

***Municipal Consultant:***

THERE is nothing exceptional about the situation presented by Mr. Hunt: it exists in every similar area in the country. Mr. Hunt, however, has not told the whole story. Real estate taxes on the homes of the low-income groups have never paid the cost of supplying local government services to that portion of the community. Indirectly, however, through the market they create for the goods and services supplied by private enterprise, they have done their part in the maintenance of high property values for industrial and commercial property. The working classes have not, as Mr. Hunt implies, been a drag on the community. Their contribution simply has not been measured wholly by taxes paid on their places of residence. Every normally healthy and industrious family is, except in times of mass unemployment, a black—not a red—item in the community ledger.

It is the narrow, artificial political boundaries of the suburbs which make the incursion of low-cost housing a threat to existing taxpayers. The builder of a $4,000 home often is a net loss to a small residential suburb which has no industrial or commercial property worth mentioning. He does not pay his own way in that suburb, although he does pay his way in the larger metropolitan community.

One answer to Mr. Hunt's problem is metropolitan consolidation, so that tax burdens can be equalized over the social and economic unity which that area represents. Small, select residential suburbs often enjoy unjustifiably low taxes because they have rejected responsibility for the more costly aspects of local government.

Another solution—and one much easier of accomplishment if the problem is attacked, as it should be, on a national scale—is a reorientation in FHA policy which would emphasize loans for the rehabilitation of blighted areas in the center of the metropolitan area, instead of deliberately encouraging the outward movement of population. For such decentralization not only brings new burdens to the residential suburbs, but by diminishing the value of real estate in the older sections of the city which forms the nucleus of the metropolitan area, threatens it with economic ruin. The conservation of real estate values by sound regional planning and zoning should be supplemented—not thwarted—by the housing policy of the National Government.

## *By Charles S. Ascher,*

***Social Science Research Council:***

RONALD HUNT raises two questions: one in planning, the other in fiscal policy. Certainly the metropolitan community of Bridgeport can be so planned that the intrusion of colonies of low-cost dwellings into suburbs now devoted to large tax-paying estates need in no way depreciate the value of the large estates or destroy their amenity. This problem does not, however, seem to be the one that bothers Mr. Hunt. Apparently the estate owners want their amenity—and escape from the financial responsibility of educating the children of the poor. (Presumably in the lower-class districts of Bridgeport the same family pays $112 into the tax coffers and takes $200 out.)

There are several solutions, none of which may be pleasing to Mr. Hunt's neighbors. One would be unified metropolitan government for Bridgeport and its suburbs; another would be state aid for education, which would make it unnecessary for the local suburban real estate owners to pay the full cost of educating the children of the new residents; the third would be a personal income tax, from which such state aid might be derived. One formula may prove more or less palatable than another, but I know of no way in which poor families can pay for the education of their own children.

Mr. Hunt has failed to raise another equally probing question: Is it sound social policy for the government to encourage low-wage earners to assume the responsibility of owning homes with a cash investment of only 5 per cent? The Bridgeport suburbs may in a few years be in for a headache which they do not even foresee.

## *By Helen C. Monchow,*

***Journal of Land and Public Utility Economics:***

IT SEEMS pretty clear that decentralization is here to stay—for a time at least. Low-priced automobiles, subsidized highways, and the availability of low-cost housing on easy terms, constitute three currently powerful forces detracting from urban centers. At the moment it appears that adjustment must be made to them, instead of vice versa.

If this outward movement of urban population does not pay its own way, is not the problem one of relativity in subsidization? In other words, shall we subsidize slums or shall we subsidize decentralized housing? Preference would seem to lie with the latter type of subsidy. The generally more healthful living conditions (assuming reasonable standards of residential construction) thus made available to workers should in the long run pay dividends in the form of lower city costs for health programs. To the extent also that small plots may provide some subsistence, relief burdens may be reduced.

To the cities faced with meeting the differential between tax income from these small outlying properties and the governmental costs they entail, it would seem that diligent search should be made for other sources of revenue or that other budgetary adjustments should be undertaken, such, for example, as more equitable distribution of the costs of highway construction and maintenance between the city and the state or county.

With respect to the physical problems caused by these low-cost outlying developments, some constructive steps can be taken. Careful land planning can fit these areas into the community pattern without disturbance to other existing and potential land values. Separation of them from industrial or higher-priced residential developments by green wedges or strips of park land will protect them as well as adjacent areas and contribute to the stability of land values in the community. Likewise, enactment and enforcement of sound but reasonable building standards will increase the useful life

of these properties and prevent their becoming the very type of areas which their present occupants are seeking to avoid.

## *By Herbert Emmerich,*

***Public Administration Clearing House:***

SEVERAL suggestions might be made in reply to Mr. Hunt. They are:

1. Research is needed by municipalities of the state to ascertain whether his basic assumption is valid, i.e., that the $4,000-home owner pays $112 into the tax coffers and takes out $200? Does Mr. Hunt really know this to be true, and has he taken into account the economic effect on municipalities of a building program which puts men to work?

2. Planning agencies of the state of Connecticut should consider the location of low-cost housing projects built by private enterprise in a manner which will help rather than hurt the municipal economy. The use of sites which are already improved and where community facilities do not have to be newly provided, can be encouraged, and the subdivision of outlying areas, unless street and other improvements are provided by the developer, can be discouraged.

3. The type of housing project itself should be carefully considered, particularly in connection with housing for workers in industries which will be greatly stimulated by defense needs and may be temporary. Large-scale group housing projects rented to wage-earners may be less costly to the community in utilities and facilities. They will be socially and economically a better type of project than home ownership for the wage-earner who may not be permanently located in the community. Perhaps the state or the nation should share the risk with private capital in building such dwellings for rent.

In conclusion, let me state that the middle and wealthy class of home owners are going to benefit by war booms in spite of legislation to tax excess profits. In any event, they should, and I believe they will be, willing to support municipal services when well conducted in times of emergency.

## *By Philip H. Cornick,*

***Institute of Public Administration:***

THE question which Ronald Hunt raises and illustrates so forcefully with examples from Bridgeport and its suburbs probably finds its counterpart in every American metropolitan area. Even in some of the isolated urban centers with total populations of about 10,000, the flight to the suburbs is bleeding the center white; and is probably creating an ultimate excess of current liabilities over current assets in many of the adjacent rural municipalities.

Until about thirty years ago, the great majority of urban workers in the smaller cities had to live within walking distance of their place of employment; in the larger cities, they were bound by circumstance to live within walking distance of such rapid-transit lines as were available. The necessities of that era set the existing pattern of land use in our urban centers, large and small, characterized by small building lots, lack of open spaces, inflated land values, and congested residential districts. Now, the cheap automobile and the hard roads radiating in all directions have removed those old imperatives. Still as much a slave to time as ever, the working man—including all grades from executives and professional men to unskilled laborers—are free to spread their residences out over a larger area surrounding the commercial and industrial centers. They can have all the advantages of more spacious living without the sacrifice of more time in getting to and from work than they had to spend in the earlier days. Similarly, commercial and industrial establishments have been given a wider range of choice in the selection of their own sites. The city, viewed as a community of people engaged in the exercise of special skills for the production of needed goods and services, has shaken off one of the important shackles which bound it to congestion.

On the other hand, the city viewed as a municipal corporation created by legislative act and vested with powers and duties to provide urban improvements and services for its residents, has not been similarly freed. Its boundaries, established by charter to fit this old situation, and buttressed from both sides by partisan or factional prejudices and parochial patriotisms, remain fixed on the ground, even though large numbers of workers and former residents spill out over them into a whole series of politically independent, economically weak, and administratively incompetent rural municipalities. In one you find a natural concentration of business executives and professional men with a high average of income and taxpaying capacity, but who because of age alone have few children of school age; in another, a whole new population of young salesmen, mechanics, and clerks still far down the scale in earning capacity, but just at the time of life when their children are of school age; in still another, a cluster of large industrial plants which have selected some strategic but underpopulated town as their haven from high tax burdens.

In its new freedom to seek light, air and space, the economic community has split up into a number of unrelated and fiscally independent political units, composed not of representative cross-sections of the economic community, but of fairly homogeneous sub-communities drawn from different income or age groups. That sub-communities of this type are natural and desirable is indicated by the fact that they had tended to grow up and survive for long periods within the limits of the central political city itself. They cannot all survive as independent political units. Neither can the old central city survive if its workers concern themselves only with the political and fiscal conditions affecting their homes, and ignore those affecting the places where they earn their living.

No basic problem is ever solved by running away from it. That in effect is what the residents of central cities do when they merely move their homes —and their votes—to the outlying fringes without adjusting their political instrumentalities to the new situation. Somehow, the people who have been freed from living in the urban center even though they continue to work there, must find a way of taking their city limits with them along with their homes. They must find a way of making their common government more responsive, flexible, and efficient in adapting itself to the new mode of living which is struggling to emerge. The same race that devised the present political institutions, and then perfected the automobile to make them obsolete, can no doubt revise them to fit the needs. Whenever it takes that one added step, there will be no "school board deficit" to worry about. *E pluribus unum* is still sound political doctrine.

### The Louisville Award for Finance Officers

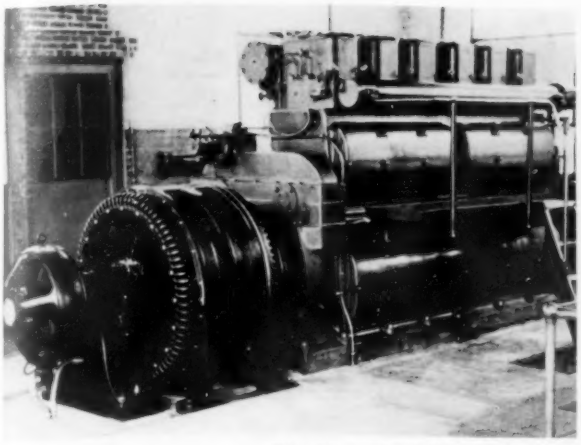
Through the generosity of the city of Louisville, Ky., and at the immediate suggestion of John R. Lindsay, Director of Finance, a fund of $1,000 has been established, the income of which will be used to make annual awards to the finance officer member of the Municipal Finance Officers' Association who makes the outstanding accomplishment of the year.

Every member of the MFOA or any subordinate financial employee of a member city is eligible to receive the award. Subordinate employees must have the approval of their superiors when their applications are filed. Application forms will be mailed to all members of the Association on or about December 1, 1940, and they must be completed and filed by March 1, 1941.

The purpose of the award is to stimulate the interest of finance officers in rendering real service to the government by which they are employed, and secondarily, to bring to the attention of the public the extensive accomplishments of finance officers.

The award will consist of a bronze medal and a parchment certificate.

CARL H. CHATTERS,
Executive Director, Municipal Finance Officers' Association, Chicago, Ill.



*The New Diesel Unit and the Municipal Plant at Siloam Springs, Ark.*

# New Diesel Engine Increases Plant Unit Production 19%

*By* H. C. WARD
City Engineer, Siloam Springs, Ark.

IN THE latter part of 1939, Siloam Springs Ark., added a 540-hp Alco diesel engine to the two 375-hp McIntosh & Seymour engines which have operated in the plant since it was built and equipped by the American Locomotive Co. in 1931. The older engines are rated 254 kw at 360 rpm. The new engine operates at 600 rpm and is a six-cylinder, four-cycle unit direct-connected to a 560-kw generator where normally a 375-kw generator would be used.

## Using Exhaust Gases Increases Capacity

The larger capacity, which anticipates growing load, is made possible by placing an exhaust-gas turbine in the exhaust line. Driven by the exhaust gases, this Buchi turbocharger provides air at greater than atmospheric pressure on the intake stroke, which permits the engine to burn a correspondingly greater amount of fuel per cycle, generating a correspondingly greater amount of power. There is thus available when needed at least 50 per cent more capacity than the rating of the unit. To make use of this additional capacity, it is necessary merely to install the turbocharger above the generator, and change the camshaft, fuel pumps and nozzles, and exhaust piping from cylinders to turbocharger.

During the first 1,097 hours of operation the load carried by this engine averaged 235 kw, or 41 per cent of its normal supercharged rating; yet its production amounted to 13 kwh per gallon of fuel oil consumed. On a 32-hour test late in 1939, the new Alco diesel engine averaged 234.39 kw and produced 12.5 kwh per gallon of fuel. During the month June 15-July 15, 1940, the over-all plant production was 164,000 kwh, peak load 540 kw, minimum load 100 kw, average load 227.7 kw; the over-all plant production was 11.68 kwh per gallon of fuel oil.

What these figures suggest in efficiency is indicated by the fact that of the 444 diesel engines included in the 151 plants both private and municipal reported for 1938 by the Subcommittee on Oil Engine Power Cost of the American Society of Mechanical Engineers, only eight engines produced 13 or more kwh per gallon of fuel oil. These eight engines are in five plants; two private power utilities and three municipal plants. In the private utility plants, a 3,750-hp engine operating 2,390 hours in 1938 produced 13.29 kwh per gallon of fuel, and a 3,000-hp engine operating 7,198 hours produced 13.42 kwh. In the three municipal plants: (1) three 625-hp engines each operating 1,936 hours produced respectively 13.67, 13.80, and 13.52 kwh, and a 1,500-hp engine produced 13.48 kwh in 480 hours of operation; (2) a 625-hp engine in 1,958 hours produced 13.35 kwh; (3) a 2,250-hp engine in 8,396 hours averaged 13.62 kwh per gallon of fuel oil.

The new engine at Siloam Springs is equipped with: an air filter to keep grit and dust out of the cylinders, resulting in a cleaner engine, less wear, less maintenance; a Brown exhaust temperature pyrometer to maintain an equal loading on all cylinders; and a Woodward isochronous governor for extremely accurate control.

# The Application of Machines to Real Estate Tax Accounting

By John E. Shriver, C. P. A.

THE costly duplication of effort so common to manual accounting methods is eliminated by modern real estate tax-accounting machines. Their development has made it an extravagance to write names, addresses and property descriptions on assessment records, tax rolls, tax bills and delinquent records separately by hand. Likewise, the posting, proving and journalizing of tax charges, tax credits and authorization charges as separate operations is no longer necessary. Duplication of work on tax bills and receipts also has become a thing of the past. In short, machines have made it possible to eliminate many needless motions and operations and thereby effect substantial savings.

To provide a clear picture of the resulting simplicity and efficiency, I will outline a few advantages of machines on such jobs as:

Assessment record and field books
Valuation controls
Unit tax ledger
Tax billing
Tax collections and bill receipting
Tax distribution

Field sheets provide information regarding real-estate properties for establishing assessed valuations—the base of real estate tax revenue. An accurate record of all property descriptions and valuations is as important to a city or county as are stock records to a manufacturer or merchant.

A plate or stencil showing the name, address and property description sets up a legal record which may be reproduced mechanically on all forms at a fraction of the time required by manual methods. Once these records are checked against the present legal descriptions, the accuracy of all names, addresses and property descriptions on subsequent records is assured.

Individual real property assessment ledger cards are headed up by the address plate of stencils for each parcel of property and are filed in geographical order with an accounting control maintained over the valuation for each district or ward within the city or county.

Valuation changes either increase or decrease the assessment ledger balances, all such changes originating from authorizations made on serially numbered forms. With the modern tax-accounting machine to post changes to the assessment form, records result which furnish *at all times* the valuations represented by each tax district. Postings from these records to the tax roll represent a trial balance of the city's taxable assets.

Under the plans followed in some sections, there is nothing to prevent a dishonest taxpayer from altering the records which, according to law, must be available for public inspection prior to preparation of the tax rolls. However, with the tax roll prepared by machine from machine-posted individual assessment ledger cards, alteration of records becomes a practical impossibility.

## Special Assessment Tax Records

In addition to involving considerable duplication of effort, many local assessment records are wide and unwieldy and fail to supply information which will afford a proper collection follow-up.

One of today's successful systems uses plates or stencils for heading up the individual ledger cards, which are filed in a ledger tray containing a control card that often is a record of the particular bond issue covered by that assessment roll.

As installments become due, the tax-accounting machine is used to enter the charge on the bill and to calculate by *direct* mechanical multiplication the interest on the unpaid balance. The machine posts, proves and journalizes these entries in one operation on the local assessment roll, the individual ledger card and the bill.

Ordinarily, the property owners are given an opportunity to pay snow-removal, grass-cutting, tree-trimming and other sundry charges before they are entered on the tax roll as liens on the property. The tax-accounting machine can be used to prepare these bills as a by-product of writing the assessment roll. By mailing these to taxpayers monthly, collections can be improved, which eliminates the necessity of handling many of these items at the regular tax-billing period when time is at a premium, and results in a more even flow of work.

## Tax Records Mechanically Calculated and Printed

Where unit tax ledger records are in use, and local requirements permit, the modern tax-accounting machine will prepare the tax roll, ledger and bill at one writing. Sometimes it is desirable to have the ledger maintained in the office responsible for collections, while the tax roll and bill are written elsewhere. Other cases call for the preparation of the tax roll in one department and the bill and ledger in another. Regardless of the procedure followed, the work can be handled faster, more accurately and more economically on accounting machines.

As with the assessment records, the tax rolls, ledgers and bills are addressed from plates or stencils. All three of these records are posted and proved simultaneously, the roll remaining in the machine while the various bills and ledgers are inserted, posted and removed and the next set inserted, etc.

From the assessor's list, the operator first enters the property value in the machine. The machine then calculates the amount of the tax by *direct* multiplication — not repeated addition — and the result is printed by the depression of a

single key. Incidentally, the machine points off and adjusts the tax amount to the nearest full cent, or otherwise disposes of fractional cents in accordance with legal requirements.

If desired, the machine will divide this tax figure into installments, representing first and second half payments. Local tax assessments may be added to one installment or spread over the remaining installments. The operator prints all results, merely by depressing total or product keys. Mechanical proof of all extensions is provided automatically by the machine, which also automatically accumulates a total for each column, thereby proving the accuracy of the entire page.

In addition to the highly automatic machine just described, low-cost, electric-carriage forms-writing machines are also bringing efficient results on this work to many small municipalities. These machines are equipped with front-feed carriages, and write tax roll, ledger and bill in one operation.

### Mechanical Protection—Receipting Tax Bills

When payments are received, the bill is receipted in duplicate on a cash-receipting machine so compact that it requires little more counter space than an ordinary letterhead. This machine automatically dates, consecutively numbers and prints a cashier's symbol at the time the amount is printed, and can also be equipped, if desired, to sign each receipt. Maximum protection is provided for taxpayer, cashier, collector and municipality.

To receipt a bill, the cashier merely sets up the amount of the payment on the machine's keyboard, drops the bill in a convenient chute and depresses the operating key. The amount of the payment and the receipt number also print on the machine's locked-in audit tape. At the end of the day, the total receipt figure—automatically accumulated by the machine—is printed on this tape and must balance with cash which has been taken in.

This procedure makes possible a collection follow-up comparable to those used by banks and finance houses. The taxpayer not only receives a neat, machine-printed bill, but receipting payments becomes a matter of a few seconds. Experience has proved that a system such as this one actually steps up collections, and, at the same time, gains the increased good-will of the taxpayer and reduces accounting costs.

### Tax Distribution and Apportionment by Machines

Tax distribution is definitely a machine job. Writing cash-received reports by hand and attempting to balance after the close of the day is a long, tedious task at best, and it is usually necessary to check and re-check the records several times before they balance.

With the modern multiple-total distribution machine having the column selection feature, each line of tax distribution is proven at the time it is written. A total of each distribution classification is provided as well as a proven record against which all credits to individual accounts must balance.

The growing use of combined rates has greatly simplified the problem of computing taxes. All parcels within the same area having the same tax rates are grouped together, or coded, to indicate one total tax rate. Instead of separately calculating the general tax, school district taxes, sanitary district taxes, etc., only one multiplication is required to arrive at the total tax. This might create a difficult problem of apportioning except that a tax-accounting machine with direct electrical multiplication is equally efficient in apportioning tax collections. After obtaining the total collections for each area (bearing the same combined tax rate), this total is rapidly multiplied by decimal equivalents for the various component rates to obtain the amount to which each taxing body is entitled. The machine prints each result automatically, adds the figures and, as if by magic, the total of apportioned amounts agrees to the penny with the total being broken down. Fractional remainders are taken care of automatically.

Machines are now available for all these real estate tax-accounting jobs at a wide range of prices. No longer is it necessary for a city or county to be deprived of the convenience, economy, and protection of these mechanized accounting methods.

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# "Greenbelt" Towns Opened to Privately Financed Housing

THE Farm Security Administration announced on July 18 that it will open surplus land in its three "greenbelt" suburban communities to privately financed housing developments, the Government retaining title to the land on long-term leases. These communities are Greenbelt, Md., near Washington, D. C.; Greenhills, Ohio, near Cincinnati; and Greendale, Wis., near Milwaukee.

As readers of THE AMERICAN CITY are aware, the three towns were built as low-rental housing projects for families working in the neighboring cities, and as demonstrations of model suburban planning and development. Each community was originally designed to permit considerable future expansion, and the sewerage plants, water systems, shopping centers, streets, and other facilities were built to accommodate this growth. Greenbelt, which now has 885 dwellings, can be expanded to about 3,000 homes; Greenhills, with 676 homes, can be expanded to about 2,000; and Greendale, with 572 homes, to 750.

All the homes constructed by the Government have been occupied for some time, and there is a long waiting list at each of the communities.

The Farm Security Administration is now inviting proposals from private builders and other individuals or organizations interested in home construction for the development of areas available for expansion in each community. Such proposals should meet the following requirements:

1. Land will be leased for 99 years to builders who agree to erect a group of at least 200 homes.

2. Individual residents may lease or purchase the houses from the builder.

3. There will be no income restrictions on residents, and they may dispose of their homes at any time.

4. In order to protect the general plan of the communities, the Farm Security Administration will pass upon the building plans and specifications.

5. In general, the new homes should be one- or two-story buildings, with two or three bedrooms, and should range in cost from about $4,500 to $5,500.

6. Utility services and all the existing community facilities will be available to the new residents just as they are to families now living in the towns.

# Steel Pools Draw Crowds to City Park

*By* WALLACE V. R. FRETTS
**Fretts, Tallamy & Senior, Consulting Engineers, Buffalo, N. Y.**

"WHAT we need is a modern swimming pool," decided the people of Hornell, N. Y., "to give the finishing touch to our recreational facilities in the Maple City Park."

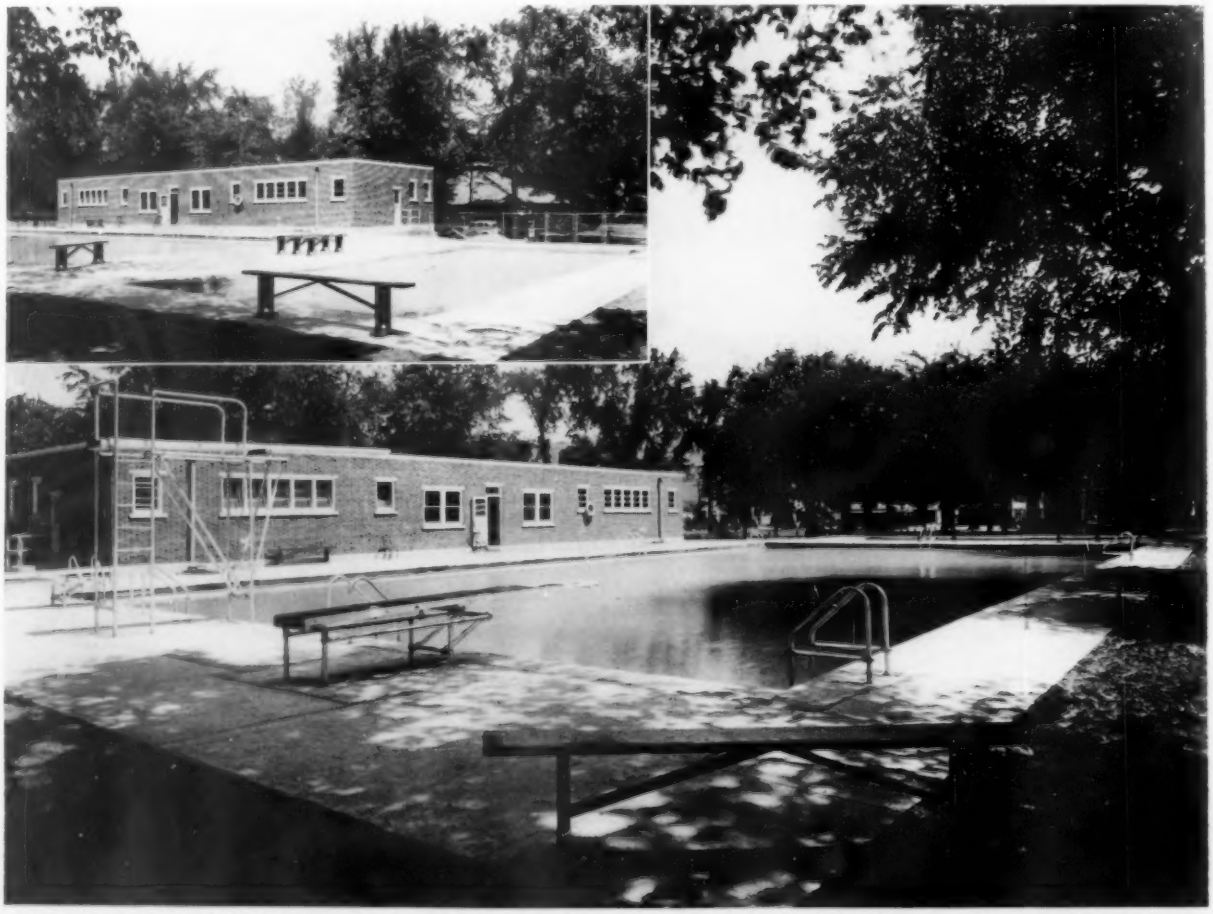
Mayor Ernest G. Stewart and F. Hurd Robinson, Superintendent of Public Works, immediately set the necessary machinery in motion to secure this very desirable improvement. Various types and sizes of pools were studied in the light of first cost, maintenance, probable life and upkeep. Steel construction was decided on, and contract was awarded to the Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.

The entire plant consists of a main swimming pool, a wading pool, and a bathing pavilion housing dressing facilities and filter equipment.

The main pool is 60 x 120 feet in plan, with water depths of 3½ to 9 feet. The wading pool is 20 x 50 feet in plan and 1 to 1¾ feet deep. Both are of all-welded construction, with side and bottom sheets supported by structural beams and knee braces. A scum gutter, draining to waste, is an integral part of the pool and entirely surrounds it.

The swimming pool has a capacity of 500, based on the accepted practice of The Joint Committee on Bathing Places of the American Public Health Association and Conference of State Sanitary Engineers. This load consists of 370 non-swimmers, 95 swimmers, and 35 divers.

Sheets were shipped direct from the mill, cut to fit on the job. Before erection, all structural steel and the back, or ground side, of all sheets were given two heavy coats



*Main swimming pool in Maple City Park, Hornell, N. Y. Fronting on it is the bathing pavilion shown in the insert, with the wading pool at its right*

of asphaltum paint. After erection, all welding beads were chipped flush with the plates, and the tanks were filled and given a water-tightness test. Several days were allowed for any settlement which might occur, and then a line was run around the pool while the water was quiescent, thereby giving an absolutely true water line. After draining the pool, the tops of the side sheets were cut to the water line, and a ¾-inch round was welded to the top of the sheets to give a smooth and satisfactory finish to the plates. The interior of the tanks and all exposed steelwork were given one prime and two finish coats of sea green Torex enamel, manufactured by the Inertol Co., New York.

The bathing pavilion is a one-story brick structure 30 x 100 feet in plan, having men's and women's dressing rooms, check rooms, toilets, showers, a first-aid room and a lifeguard room. Compulsory showers and foot-baths are located in each end of the building at the men's and women's entrances to the pool enclosure. Traffic is controlled by two Perey non-reversible turnstiles. Separate dressing cubicles with curtains are provided for the women. A filter room is located under the central part of the structure, accommodating the filters, recirculating pumps, chemical feed equipment, heating for the showers, and power panels. The general contract for the bathing pavilion (contract No. 2), exclusive of filters, was awarded to the Amherst Concrete Co., Williamsville, N. Y.

The filter contract, calling for three pressure-type units, went to the Graver Tank and Manufacturing Co., of East Chicago, Ind. The shells are of all-welded construction, with 36-inch graded filter beds, stainless-steel nozzles, loss-of-head gages, air-relief vents, backwash sight glasses. The shells are designed for 75-pound working pressure, 150-pound test.

Recirculation is accomplished by means of a "flat curve characteristic" centrifugal pump furnished by the Buffalo Pump Co. This pump also serves as a filter backwash pump, the backwash water coming from the pool and wasting to the city sewer system. The filters are protected on the backwash operation by a backwash rate-of-flow controller furnished by the International Filter Co. A hair and lint catcher, also International, is located on the main suction line from the pool, just ahead of the recirculating system at four points enters the main pool from the recirculating system at four points on the deep end, at twelve points on the sides and shallow end, and at two points on the wading pool. The pool is filled, and make-up water added, from the city's supply through a loop extending 5 feet above the maximum pool level. This loop is equipped with a vacuum valve to prevent any possible back siphonage into the city system. The recirculating pump is so interconnected that it can perform the following functions: recirculate and filter the pool water; backwash the filters; pump from the pool to waste; and provide suction for the pool cleaner.

The chemical treatment of the pool water consists of chlorination, ammoniation, coagulation and pH control. Chlorination is accomplished by hypochlorite solution, and ammoniation by aqua ammonia. Filter alum is used for coagulation and soda ash for pH. In addition, provision is made for supplementary chlorination of the make-up water if necessary to maintain the desired residuals. All chemical treatment is accomplished by variable-speed positive displacement diaphragm pumps furnished by Wallace and Tiernan, Newark, N. J.

A Tuec Tow-type pool cleaner is used to maintain the cleanliness of the pool bottom and sides. As noted above, the suction for the pool cleaner is provided by the recirculating pump, and the discharge goes directly to waste.

Hot water for the showers and lavatories is provided by a battery of Rudd instantaneous gas heaters.

The main pool has two 1-meter and one 3-meter diving-board, and is equipped with removable ladders permitting use of the pool for record swimming.

The pools are open from 9 A.M. to 9 P.M. or until darkness. No artificial lighting is installed at present, but provisions are made for future illumination.

# Planning in a Democracy

*By* CHARLES E. MERRIAM

DEMOCRACY must have not merely a past, but a future; not merely traditions but inventions. . . .

Reason must yield to force, some say, in this era of open assertion that might makes right, within the state and without. No, the answer is that reason itself is the greatest force, and in the end it will prevail. The great work of politics is to promote the commonwealth as seen by reason and applied by reasonable measures through reasonable men. But reason must be allied with will, with faith, with hope, with practical judgment, and must be set as the jewel in organization and management. It is one of the very greatest tasks of politics, now and always, to bring about the fusion of these factors—their union and their expression—in the richest forms of social and political life. . . .

It becomes more and more evident that the fullest use of American national resources cannot be obtained without careful and intelligent planning—national, state, regional and local.

Much of the criticism of democratic planning is made by those who have not clearly understood either "democracy" or "planning." Of course, if we assume that the community does not know and cannot know what it wants, and if we assume that drifting is better than planning, we will not want either democracy or planning, much less the two in combination. When the nature of the democratic political society is thoroughly understood and when the nature of planning is carefully considered, it becomes evident not only that planning is possible in a democracy, but that the soundest form of planning will be found in the soundest democracy. . . .

We stand at the gates of the age of plenty, key in hand, fumbling at the lock. But make no mistake, we face a new era. We are not going back, but forward, to build in the New World a new and finer form of American democratic state, a loftier realm to which human personality may wing its way and find its home!

—Excerpts from an address before the National Conference on Planning, at San Francisco, July 10, 1940.

# Superblock vs. Gridiron

## *Comparative Costs and Advantages Analyzed*

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THE ARCHITECTURAL FORUM for July, 1940

ESTHETICALLY, the superblock has it all over the conventional grid pattern of U. S. cities. Planning is more flexible. Dwellings have more light and air. Areas otherwise taken up by streets may be advantageously used for recreation. Traffic hazards are reduced. Admitting all these virtues, critics nevertheless have questioned the economy of the unorthodox grouping of houses, have held that it ups the costs of utilities.

Welcome by superblock advocates therefore are the recent findings of Architect O. Kline Fulmer. Unable to discover any precise development cost comparisons in the voluminous literature on housing and town planning and determined to settle this moot point, Fulmer selected an existing superblock, drew up a comparable gridiron plan with the same acreage and the same number of houses. Then he spent many a leisure hour at Greenbelt, Md. (where he is assistant manager of Farm Security Administration's rental housing) computing for each the cost of walks, drives, garages, water lines, sanitary and storm sewers. In cold dollars and cents, as his cost breakdowns testify, the superblock also outweighs the gridiron plan.

Tipping the balance are these findings:

For a project of 152 dwelling units on a 17.2 acre site, the improvements cost about $71,000 if developed as a superblock, $102,000 if developed on a grid pattern. The handsome saving of $31,000, or $202 per family, for the superblock represents an economy of roughly 30 per cent.

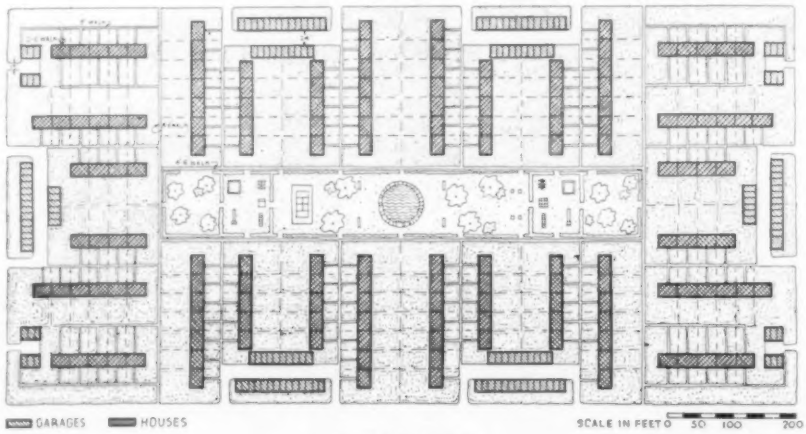
Largest single saving occurs under the heading of walks and streets; for the gridiron scheme this item runs to $38,000, whereas for the superblock it is only $14,000. The $157 per family difference is an economy of about 23 per cent.

Other superblock savings: $37 per family, or 6 per cent, in garages; $3, or a little less than 1 per cent, in water lines; $15, or about 2 per cent, in sanitary sewers.

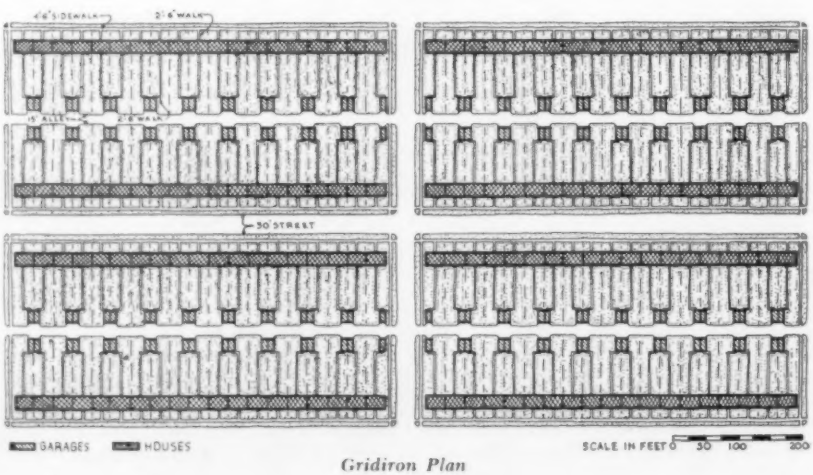
In scoring his victory for the superblock, Architect Fulmer tried to make the theoretical comparison critic-proof by utilizing practical experience so far as possible. The superblock plan is based on Greenbelt's actual layout. The gridiron plan is hypothetical but resembles closely the street and alley pattern usually found in suburban areas. The four 290 x 600 ft. blocks, together with the intervening 30 ft. streets, match exactly the superblock area of 17.2 acres. Each scheme provides 152 rowhouse dwelling units with garages, which could be either rented or sold.

Most gridiron solutions show a much higher density than 8.83 families to the acre, but for accurate comparison the coverage has been kept the same in both cases. For the gridiron plan the typical lot size is 30 x 127 ft., for the superblock 30 x 90 ft. Dwelling units are identical in size (20 x 30 ft.). So are the 10 x 20 ft. garages.

Despite Fulmer's care not to put his thumb on the superblock side of the scales, skeptical critics may still question the comparison's validity. Comments already of-




*Superblock Plan*




*Gridiron Plan*

## SUPERBLOCK PLAN

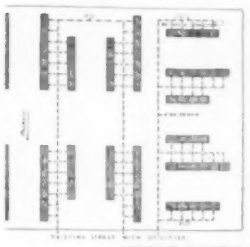
**17.2 ACRES - 152 DWELLING UNITS**

BREAKDOWN OF SITE IMPROVEMENT COSTS*

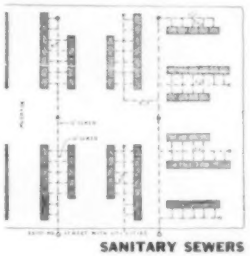
| | Entire Project | Per Family |
|---|---|---|
| Walks and Streets: | $ 2,832.45 | $ 18.63 |
| 2' 6" walks (12,315 sq. ft. @ $ .23) | 2,679.96 | 17.63 |
| 3' 0" walks (11,652 sq. ft. @ $ .23) | 1,790.55 | 11.78 |
| 4' 0" walks (7,785 sq. ft. @ $ .23) | 6,391.00 | 42.05 |
| Asphalt drives (4,261 sq. yd. @ $1.50) | | |
| Total | $13,693.96 | $ 90.09 |
| Garages: 40 end units @ $250 | 10,000.00 | 65.79 |
| 112 interior units @ $200 | 22,400.00 | 147.36 |
| Total | $32,400.00 | $213.15 |
| Water System: ¾" house connections (4,180 ft. @ $ .65) | 2,717.00 | 17.88 |
| 2" mains (680 ft. @ $ .90) | 612.00 | 4.04 |
| 2½" mains (1,050 ft. @ $1.00) | 1,050.00 | 6.91 |
| 4" mains (3,476 ft. @ $1.25) | 4,345.00 | 28.59 |
| Total | $ 8,724.00 | $ 57.42 |
| Sanitary Sewer System†: 4" house connections (4,290 ft. @ $1.00) | 4,290.00 | 28.22 |
| 6" sewer mains (3,312 ft. @ $1.50) | 4,968.00 | 32.68 |
| 8" sewer mains (460 ft. @ $2.00) | 920.00 | 6.05 |
| Total | $10,178.00 | $ 66.95 |
| Storm Sewer System† (2,790 ft. @ $2.25) | $ 6,277.50 | $ 41.30 |
| TOTAL IMPROVEMENTS | $71,273.46 | $468.91 |

*Basis: current construction costs in Washington, D. C. area. Quantities listed permit calculation of costs in other areas by substitution of local prices.

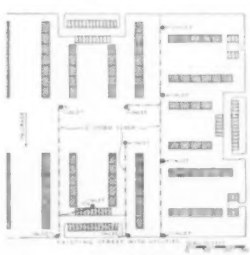
† Includes cost of manholes and inlets.



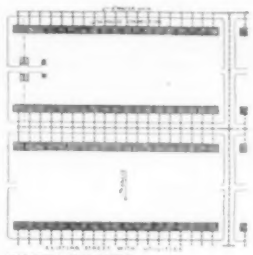
WATER SYSTEM



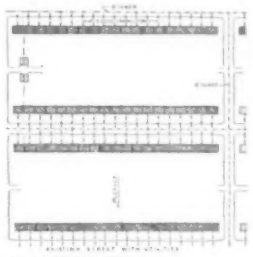
SANITARY SEWERS



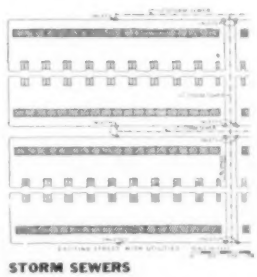
STORM SEWERS



WATER SYSTEM



SANITARY SEWERS



STORM SEWERS

## GRIDIRON PLAN

**17.2 ACRES - 152 DWELLING UNITS**

BREAKDOWN OF SITE IMPROVEMENT COSTS*

| | Entire Project | Per Family |
|---|---|---|
| Walks and Streets: | | |
| 2' 6" walks (35,100 sq. ft. @ $ .23) | $ 8,073.00 | $ 53.11 |
| 4' 6" walks (31,176 sq. ft. @ $ .23) | 7,170.48 | 47.17 |
| Asphalt alleys (4,844 sq. yd. @ $1.50) | 7,266.00 | 47.80 |
| Asphalt streets (6,033 sq. yd. @ $2.50) | 15,082.50 | 99.23 |
| Total | $37,591.98 | $247.31 |
| Garages (152 end units @ $250) | $38,000.00 | $250.00 |
| Water System: ¾" house connections (6,156 ft. @ $ .65) | 4,001.40 | 26.32 |
| 6" mains (2,980 ft. @ $1.75) | 5,215.00 | 34.31 |
| Total | $ 9,216.40 | $ 60.63 |
| Sanitary Sewer Systems†: 4" house connections (6,156 ft. @ $1.00) | 6,156.00 | 40.50 |
| 8" sewer mains (3,160 ft. @ $2.00) | 6,320.00 | 41.58 |
| Total | $12,476.00 | $ 82.08 |
| Storm Sewer System† (2,080 ft. @ $2.25) | $4,680.00 | $30.78 |
| TOTAL IMPROVEMENTS | $101,964.38 | $670.80 |
| Superblock Costs (opposite) | $71,273.46 | $468.91 |
| SAVINGS IN FAVOR OF SUPERBLOCK | $30,690.92 | $201.89 |

ered by private and public housers indicate that the moot point of economy is not easily settled:

1. Rowhouse buildings in the superblock are more numerous, require more endwalls, would presumably be more expensive to build. *Rebuttal:* End units are also easier to rent or sell, could therefore be higher priced to offset extra construction costs.

2. The gridiron plan shows walks paralleling all boundary streets. If similar walks are included in the superblock scheme, the saving on this item is largely canceled. *Rebuttal:* Walks in both plans have been put in only where necessary for the families to reach their dwelling units. However, even if 3 ft. perimeter walks should be required by the city, the added cost would be only $16.61 per family, still enabling the superblock to show a substantial saving.

3. If utilities are assumed to exist in both streets running the length of the property, then logically the gridiron layout should be the more economical. *Rebuttal:* A street with utilities flanking only one side of the property is more typical of suburban development, since subdivisions are usually platted progressively along each side of a main road radiating out from the expanding city. Granting that the water mains could be tapped from two streets, in the superblock this would permit 2½ in. lines to be substituted for all 4 in. lines with a saving of $11 per family, whereas in the gridiron plan 1,230 ft. of 6 in. lines could be completely eliminated for a saving of $14 per family. The gridiron's water system would then offer a comparative saving of $3 per family.

4. Since relatively few U. S. cities would collect garbage from all dwelling units in the superblock project, the cost of garbage collection stations should be included in the analysis. *Rebuttal:* In many rental projects, as in Greenbelt, garbage is collected by the management. If dwelling units were sold to individual families, they undoubtedly would have to initiate a garbage collection system.

5. Developed for recreation, the superblock's central parkway would involve large maintenance charges. *Rebuttal:* If already wooded, the central area could be left as a natural park. If sodded, maintenance should not be more than $3.50 per family annually. Greenbelt experience indicates that mowing and trimming the two-acre central strip costs $200 a year, leaving more than $300 for care of shrubs and trees. Playground equipment would of course involve additional expense. In exchange for money saved by the elimination of streets and alley maintenance, the municipality might be persuaded to share the cost of the interior park.

## Refuse Disposal

(*Continued from page 46*)

January, 1939, was $1.56 per ton of mixed refuse burned, and the total cost for incineration was $1.79 per ton. In the new incinerator the cost of labor in January, 1940, was 91.9 cents per ton, and the total cost of incineration $1.11 per ton. The collection cost in January, 1940, was $3.91 per ton.

The collection and disposal of mixed refuse and ashes in New Rochelle is under the direction of Albert J. Fearing, Director of Department of Public Works, and C. A. Hughes, Office Engineer. The operation of the incinerator is in direct charge of John R. Roberts, operator. The incinerator project was designed by Gascoigne & Associates, of New York and Cleveland, with Claude F. Wertz in charge, and under the direction of Charles A. Emerson. The incinerator contract was awarded to the Morse-Boulger Destructor Co. of New York City.

# Employment Steady in Refuse Bureau

## *Figures for Personnel in Milwaukee Show Uniformity Over Four-Year Period for All Grades of Employees*

THE rise and fall in employment of labor by industry is not paralleled by that in at least one of the departments of the city of Milwaukee in giving service to its citizens. This is the Bureau of Garbage Collection and Disposal of the Department of Public Works. Despite an increase in area covered and a natural increase in population of the city, this bureau has kept its employment rolls steady during the past four years. Below is the employment record for the Bureau for the period mentioned:

### Costs

During 1939 the Bureau had in service four trailer trains, three trailer shuttles, one direct-haul trailer and several trucks for garbage collection. The total garbage tonnage collected in that year by city equipment amounted to 46,093,150, while the total garbage disposed of was 50,606,450 tons, the difference being accounted for by the hauling of some of the garbage from hotels, etc., by private equipment.

The cost per ton of garbage handled by the Bureau was found to be $5.766 for collection, $2.419 per ton for disposal, and $0.285 per ton for office expenses, a total of $8.47 per ton.

In 1939 the city of Milwaukee had a population of about 628,000. This makes the per capita costs per ton as follows: collection, $0.4242; disposal, $0.1950; clerical (office) expense, $0.0219; a total of $0.6401 per capita per ton of garbage handled by the Bureau.

Morris G. Oesterreich is Superintendent of the Bureau of Garbage Collection and Disposal, Department of Public Works.

| Positions | Four-Year Averages 1936 | 1937 | 1938 | 1939 |
|---|---|---|---|---|
| Office Division: | | | | |
| Superintendent | 1 | 1 | 1 | 1 |
| Clerks | 2 | 2 | 3 | 3 |
| Weighmasters | 3 | 2 | 2 | 2 |
| Totals | 6 | 5 | 6 | 6 |
| Collection Division: | | | | |
| Field supervisors | 3 | 3 | 2 | 2 |
| Field helpers | 1 | 1 | 1 | 1 |
| Collection laborers | 47 | 49 | 51 | 51 |
| Teamsters | 42 | 42 | 42 | 42 |
| Truck drivers | 11 | 13 | 13 | 13 |
| Trailermen | 9 | 9 | 8 | 6 |
| Totals | 113 | 117 | 117 | 115 |
| Disposal Division: | | | | |
| Permanent: | | | | |
| Engineman in charge | 1 | 1 | 1 | 1 |
| Assistant foremen | 3 | 3 | 3 | 3 |
| Machinery operators | 4 | 4 | 4 | 4 |
| Cranemen | 4 | 4 | 4 | 3 |
| Furnacemen "A" | 3 | 3 | 3 | 2 |
| " "B" | 12 | 11 | 11 | 10 |
| Incinerator helpers "B" | 5 | 5 | 4 | 4 |
| " " "A" | 22 | 19 | 20 | 20 |
| Permanent Total | 54 | 50 | 50 | 47 |
| Temporary: | | | | |
| Firebrick masons | 1 | 1 | 1 | 1 |
| Cranemen | 1 | 1 | 1 | 1 |
| Furnacemen "B" | 2 | 2 | 4 | 5 |
| Incinerator helper "A" | 2 | 2 | .. | .. |
| Truck drivers | 1 | 1 | 1 | 1 |
| Trailermen | 1 | 1 | 1 | 1 |
| Total temporary | 8 | 8 | 11 | 14 |
| Totals Disposal Division | 62 | 58 | 61 | 61 |
| Totals — Bureau of Garbage Collection and Disposal | 181 | 180 | 184 | 182 |

## *Wisconsin's New State Traffic Patrol*

CREATION OF A WISCONSIN STATE TRAFFIC PATROL completes the establishment of a law-enforcement agency —either police or highway patrol—by every state in the Union, says the International Association of Chiefs of Police.

The new patrol has a uniformed personnel of 45 officers, and is responsible for the enforcement of all state laws governing the licensing and operation of motor vehicles on the state's highways. It is one of three divisions—the other two are motor registration and safety promotion—of the new State Department of Motor Vehicles, set up under a 1939 state law. By its action, Wisconsin became the 48th and final state to create a state highway police agency—just 105 years after the famed Texas Rangers, "granddaddy" of modern state law-enforcement agencies, was established in 1935 to combat cattle rustlers and the smuggling of aliens across the Mexican border. It was pointed out, however, that the state police movement took its modern form in 1905 in Pennsylvania, although Massachusetts set up a "state police force" in 1865, and the Arizona Rangers was formed in 1901.

Wisconsin's new motor vehicle department consolidates, for the first time in the state's history, all functions relating to licensing, regulation, inspection and safety of motor vehicles. Through the reorganization, the state has created a modern set-up for traffic law enforcement and highway safety promotion.

Despite the fact that the traffic patrol is comparatively small, Commissioner George W. Rickeman of the new department believes it will increase the safety of Wisconsin highways. Officers of the patrol attended a three-day school in May before the patrol began operating officially, and patrolmen now are conducting a drive to enforce the proper licensing and loading of trucks. Their other duties include testing 2,000 school buses and drivers, investigating accidents, and conducting drivers' license examinations. Patrolmen cooperate fully with the safety promotion division.

# Water Rates and Service Charges

## 1940—Part VIII

*Covering Domestic and Industrial Meter Rates, Discounts and Penalties, Installation Charges, Fire Hydrant Rentals and Fire Sprinkler Costs*

### Columbus, Nebr.

| | |
|---|---|
| Present population | 8,000 |
| Population served | 6,500 |
| Number of active services | 1,550 |
| " " meters | 1,550 |
| " " hydrants | 151 |
| Miles of water main | 24 |

The water rates, payable quarterly, are $1.60 minimum, which allows the use of 12,000 gallons. The rates then are 13.3c per 1,000 gals. up to 50,000, then the next 50,000 gals. at $.10 per 1,000 gals., and the charge is 6 2/3 cents per 1,000 gals. for all water used over 100,000 gals.

Applications for water service must be made at the Water Department office for permits. The Department does not install the water services.

No charges are made for public or private fire hydrants, nor for sprinkler heads for private fire protection.

Sewer rates are based on the number of outlets, and the rate is $1.25 per quarter minimum, for houses, and $2.00 minimum per quarter for business establishments.

C. H. Whitaker,
Commissioner, Water and Sewer Department.

### Westfield, Mass.

| | |
|---|---|
| Present population | 18,788 |
| Population served | 18,400 |
| Number of active services | 3,295 |
| " " meters | 237 |
| " " hydrants | 505 |
| Miles of water main | 70.38 |

A quarterly charge is made for meters supplied by the city and installed within a building as follows:

| Quarterly Service Charge and Meter Rent | |
|---|---|
| 5/8" meter | $ .50 |
| 3/4" " | .80 |
| 1" " | 1.25 |
| 1 1/2" " | 2.00 |
| 2" " | 2.50 |
| 3" " | 4.50 |
| 4" " | 9.00 |

Rentals for larger meters are proportionate to the cost of the meter and the cost of installation. In unusual cases, when it becomes necessary to locate a meter in the street or upon premises outside the buildings, the amount of the rental is 10% of the cost of the meter and its installation.

The charges for water used are as follows:

| | Per 100 Cu. Ft. |
|---|---|
| First 10,000 cu. ft. or less per quar. | $ .15 |
| Over 10,000 " " " " " | .05 |

When the total use for one independent premises amounts to 300,000 cu. ft. or more in any one quarter, the entire quantity is billed at $.05 per 100 cu. ft. with a discount of 10% for all bills paid by the 15th of the month in which the bill is rendered.

The quarterly minimum charges for water are $2.50 per quarter for single buildings and double houses or blocks of two or more ground-floor or single-tenement sections, per tenement. In tenement houses, apartment blocks, etc., each tenement or apartment must pay at least $2.50 per quarter. In business blocks, factories, and other industrial plants, or where elevators and motors are used, each bill for each independent premises must be not less than $3.00 per quarter. Business and industrial buildings of more than one section, and adjoining or adjacent buildings under one independent ownership, such as a plant, if not separated by a street or by other buildings or premises under another ownership, may be considered as one independent premises, and as such subject to the computing and billing of the meter rates listed above. In all other cases, the supply through the service and meter is computed and charged as separate and independent bills.

The cost of installing new services and renewing old services from the main to the property is done at the expense of the property owner.

There is no charge for public fire hydrants attached to the water mains of the Department, nor for sprinkler heads for private fire protection.

Oren E. Parks,
Superintendent, Board of Public Works.

### Reading, Ohio

| | |
|---|---|
| Present population | 7,000 |
| Population served | 7,000 |
| Number of active services | 1,365 |
| " " meters | 1,365 |
| " " hydrants | 115 |
| Miles of water main | 12 |

The water rates payable at the Light and Water Office in City Hall, between the 1st and 10th of each month, are as follows:

| | |
|---|---|
| First 10,000 cu. ft. | $ .20 per 100 cu. ft. |
| Next 20,000 " " | .15 " " " " |
| " 20,000 " " | .12 " " " " |
| " 100,000 " " | .10 " " " " |
| " 200,000 " " | .08 " " " " |
| Over 350,000 " " | .06 " " " " |

Minimum charge $2.00 per one quarter-year. Penalty 10% after the 10th.

No charge whatsoever is made for fire hydrants for either public or private service or for sprinkler heads for private fire protection.

William C. Uhrig,
Superintendent, Light and Water Department.

### Garden City, Kans.

| | |
|---|---|
| Present population | 6,050 |
| Population served | 5,000 |
| Number of active services | 1,260 |
| " " meters | 1,260 |
| " " hydrants | 130 |
| Miles of water main | 14 |

The minimum charge for water delivered through meters in Garden City is $1.00 per month. All water is billed at $.125 per 1,000 gals.

Upon receipt of a formal application for water service, the Water Department makes the tap, runs the service line to the property line and installs the meter at the following charges:

| | | | |
|---|---|---|---|
| 3/4" service | $20.00 | 1 1/2" service | $80.00 |
| 1" " | 40.00 | 2" " | 160.00 |

There are no hydrant rentals and no charges for connections for sprinkler heads for private fire protection.

J. A. Roby,
City Engineer.

### Park Ridge, Ill.

| | |
|---|---|
| Present population | 11,500 |
| Population served | 11,500 |
| Number of active services | 3,500 |
| " " meters | 3,500 |
| " " hydrants | 975 |
| Miles of water main | 71.5 |

The water rates in Park Ridge, Ill., are as follows:

| | |
|---|---|
| First 6,000 gals. | $1.75 (min.) |
| Next 44,000 " | .25 M gals. |
| " 200,000 " | .18 M " |
| Over 250,000 " | .15 M " |

A formal application or contract for metered service must be made by the owner, lessee, or agent. At the time of the application, a deposit of $3.75 is required to bind the contract, and may be used for payment of bills. The deposit is refunded at the time the final bill is paid.

The charges made by the Water Department for tapping the city mains for services are:

# SUMMER or WINTER...

## Always Ready for Any Job

**If your city is equipped with Adams Heavy-Duty Motor Graders you are ready, instantly—summer or winter—to tackle a wide variety of street and grading jobs . . . In summer they will build grades for new streets, scarify and reshape old oiled or macadam surfaces, grade sites for airports and playgrounds, build new driveways in parks and golf courses and, of course, maintain the surfaces of all unimproved streets and alleys . . . During winter months they scarify and blade packed ice and snow and prove generally helpful in snow removal . . . Available with 66½-hp. Diesel or gasoline engines, you can depend upon them to handle all such jobs with dispatch and economy.**

**Smaller machines with 45-hp. engines also available. Mail the attached coupon today for complete information.**

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Gentlemen: Send me the name of your local representative and catalogs describing your ☐ Heavy-Duty, ☐ Medium-Size, ☐ Small Motor Graders.

Name .....

Title .....

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AM-8-40

| | |
|---|---|
| ¾" | $15 00 |
| 1" | 25 00 |
| 1½" | 45 00 |

There are no hydrant rentals for either public or private fire hydrants, and no charges are made for sprinkler heads for private fire protection.

J. W. Cuthbert,
Superintendent, Water Department.

## New Albany, Ind.

| | |
|---|---|
| Present population | 26,000 |
| Population served | 27,000 |
| Number of active services | 6,822 |
| " " meters | 5,336 |
| " " hydrants | 312 |
| Miles of water main | 56 |

The water rates for residential, commercial, or industrial water service in New Albany for water used are:

| | | |
|---|---|---|
| First | 1,000 cu. ft. at | $1 65 per 1,000 cu. ft. |
| Next | 2,000 " " " | 1 50 " " " " |
| " | 3,000 " " " | 1 35 " " " " |
| " | 6,000 " " " | 1 20 " " " " |
| " | 54,666 " " " | 825 " " " " |
| " | 66,667 " " " | 75 " " " " |
| " | 133,333 " " " | 60 " " " " |
| " | 133,334 " " " | 525 " " " " |
| " | 133,333 " " " | 45 " " " " |
| " | 133,333 " " " | 375 " " " " |
| Over | 666,666 " " " | 30 " " " " |

The monthly minimum charge is based on the size of the meter as follows:

| | |
|---|---|
| ½" or ⅝" meter | $1 50 |
| ¾" " | 2 00 |
| 1" " | 3 00 |
| 1½" " | 5 00 |
| 2" " | 7 50 |
| 3" " | 10 00 |
| 4" " | 20 00 |
| 6" " | 40 00 |

The Water Department owns and maintains the water service from the main to 1 ft. inside the sidewalk or property line, whichever is shortest. No charge is made for the installation of the service, but no work is ever done on the customer's portion of the service line.

Flat rates for fire services of various kinds, both private and public, are made, as follows:

| Rates | Per Month |
|---|---|
| For fire service from 2" line for standpipe | $2 3333 |
| For fire service from 3" line for standpipe | 3 7500 |
| For fire service for automatic sprinkler service through 4" line, first 7,000 heads | 4 5833 |
| Each additional head | 0083 |
| For fire service for automatic sprinkler service through 6" line, first 1,000 heads | 6 2500 |
| For each additional head | 0083 |
| Private fire hydrant, each | 5 4166 |
| Municipal fire hydrant, each | 4 1666 |

F. A. Schaeffer,
Superintendent, Gas & Water Department.

## Ypsilanti, Mich.

| | |
|---|---|
| Present population | 13,060 |
| Population served | 12,000 |
| Number of active services | 3,100 |
| " " meters | 3,050 |
| " " hydrants | 259 |
| Miles of water main | 41 |

Meter rates for water consumed in Ypsilanti are collected semi-annually in May and November, with a minimum charge of $5.50 for 6 months, for which there is allowed 2,000 cu. ft. of water. Beyond this, a charge of $.10 per 100 cu. ft. is made. Since May, 1924, residents outside the city of Ypsilanti, using city water, pay double these rates. A formal application for a water service must be signed and delivered to the City Clerk, agreeing to pay for all water used, and to permit the water to be shut off if bills are not paid, until such time as all arrears are cleared up. The city charges $25 for the installation of a ¾" service line, and $35 for the installation of a 1" service.

A charge of $50 per year for each public fire hydrant is made by the Water Department. There are no charges for sprinkler heads installed on private property for fire protection.

H. C. Holmes,
City Clerk.

## Garden City, N. Y.

| | |
|---|---|
| Present population | 11,000 |
| Population served | 10,600 |
| Number of active services | 2,683 |
| " " meters | 2,777 |
| " " hydrants | 588 |
| Miles of water main | 63.3 |

The water rate in the village of Garden City is uniform at $1.875 per 1,000 cu. ft., with a minimum charge of $3.75 per quarter. If an account remains unpaid at the expiration of 30 days, service may be discontinued; if so, an additional charge of $2.00 is made, and the total of the bill must be paid before service is renewed. Property owners who close their homes for any period during the year and request that water be shut off and service discontinued during such period, are obliged to pay a fixed charge of $5.00 made in lieu of the minimum service-rate charge for that period, and to cover the expense of shutting off and turning on the service.

A detailed application must be filed with the Department of Public Works of the village of Garden City before a service is installed. The form used gives an exact location of the property to be served, with the name of the owner, builder and plumber and the signature of the applicant. There is also space for a complete list of the charges to be paid by the applicant and the office record for dates and sizes, and a space for acknowledgment of payment by the applicant. All work from the mains to the property line is done by the Department of Public Works. Plumbers are not permitted to open the street, nor are they permitted to make the connection to the water meter. All meters are set by the Department of Public Works, and those larger than 1" are paid for by the applicant. All water meters remain the property of the village of Garden City. The installation of water services is done on a cost plus basis, with no charge for street repairs when services are renewed.

There are no charges for public fire hydrants, and there are no private fire hydrants, nor are there any charges for sprinkler heads for private fire protection. There is a standby charge for private fire lines, standpipes, etc., based on the size of the connection.

A. H. Rogers,
Superintendent, Public Works.

## Neenah, Wis.

| | |
|---|---|
| Present population | 10,000 |
| Population served | 10,000 |
| Number of active services | 2,662 |
| " " meters | 2,711 |
| " " hydrants | 235 |
| Miles of water main | 33 |

The present reduced water rates in Neenah, Wis., are as follows:

| | | Gross |
|---|---|---|
| First | 10,000 gals. | $ 33 per 1,000 gals. |
| Next | 40,000 " | 275 " " " |
| " | 250,000 " | 22 " " " |
| | | Net |
| First | 10,000 gals. | 30 " " " |
| Next | 40,000 " | 25 " " " |
| " | 250,000 " | 20 " " " |
| " | 700,000 " | 15 " " " |
| All over | 1,000,000 gals. | 10 " " " |

The minimum quarterly bill is $1.25, net. Added to this is a service charge depending on the size of the meter in use, as follows:

| | |
|---|---|
| ⅝" meter | $ 75 net per quarter |
| ¾" " | 75 " " " |
| 1" " | 1 50 " " " |
| 1½" " | 2 50 " " " |
| 2" " | 5 00 " " " |
| 3" " | 7 50 " " " |
| 4" " | 10 00 " " " |

Bills are due on or before the 15th of the month. All bills paid after that date forfeit the discount, and if not paid by the 20th, the water is turned off. These rates apply only to consumers within the city of Neenah, the rates for water sold outside the city being 15% higher.

Applicants for water service sign a card designating the size of service wished and agreeing to abide by the rates, rules and regulations as filed with the Railroad Commission of Wisconsin, and agreeing to pay for the service line as installed. The charges for the installation of water services are $20 for a ¾" service, and larger lines at cost, plus 15%.

Hydrant rentals are $55 each per year for public fire hydrants, and $75 each per year for private fire hydrants. Fire-sprinkler connections are billed at $75 for a 4" connection, $100 for a 6" connection, and $150 for an 8" connection, and as each is equipped with a meter, all water used must be paid for.

F. E. Mace,
Superintendent, Neenah Water Commission.

## Grand Haven, Mich.

| | |
|---|---|
| Present population | 8,500 |
| Population served | 9,000 |
| Number of active services | 2,670 |
| " " meters | 2,410 |
| " " hydrants | 169 |
| Miles of water main | 30 |

The general water rates in Grand Haven are as follows:

| | | |
|---|---|---|
| First | 500,000 gals. quar. | $ 25 gross per 1,000 gals. |
| Next | 500,000 " " | 24 " " " " |
| " | 500,000 " " | 23 " " " " |
| All over | 1,500,000 gals. | 20 " " " " |

The net bill represents a discount of 30% due and payable the 5th of the second month following the last month of the quarter bill, after which date the gross amounts are collected. The gross quarterly minimum charges are as follows:

| | | |
|---|---|---|
| Service with | ⅝" meter | $2 50 quarterly |
| " " | ¾" " | 3 00 " |
| " " | 1" " | 4 00 " |
| " " | 1½" " | 6 00 " |
| " " | 2" " | 10 00 " |
| " " | 3" " | 20 00 " |
| " " | 4" " | 40 00 " |

The consumers' water rates outside of city limits are the regular rates plus 10%.

If a consumer wishes his meter tested, he must call in person at the water works office, state the reason for wishing a test made, fill out a special form and deposit

# *Latest News* on the Washington National Airport—

# *24 International* TD-18's are Speeding it to Completion!

*Above:* The International TD-18 Diesels turn, mix, and dry the fill material. They also distribute and re-distribute it around the airport and into the runway bases. An unusual rock formation from the river bed makes it tough on tracks, but the TD-18's are standing the punishment in good shape.

AMERICA's largest airport and terminal, at Gravelly Point, Va., serving the nation's capital, is now being rushed to completion with the aid of 24 International TD-18 Diesel TracTracTors. These powerful crawlers have taken over this tremendous earth-moving job as a result of the outstanding performance of one of these units which went on the job a year ago.

When the new TD-18 hit the market early last year, the demand far exceeded the supply. As soon as the Northern Virginia Construction Co., Alexandria, managed to get one, they put it to work on the Washington Airport. Right from the start, the TD-18 became the most popular tractor on the field. Everyone wanted to use it. Unqualified statements made by those who got it, labeled the TD-18 as the *best tractor on the field regardless of size.*

With all these men *the reputation of* this great tractor *was made.* It was natural, then, for 12 more TD-18's to get the call in February. Today there's a total of 24, owned by the Northern Virginia Construction Co.; L. B. Smith, Harrisburg; and the Capital Excavating Co., Highway Engineering Co., and Morauer and Harzell, Washington. In addition, there are 2 International I-40 wheel-type tractors on the job.

The International TD-18 Diesel *had to be plenty good on the Washington Airport*—as on *every* job, because it's been under the severest scrutiny. And its three new smaller brothers are carrying on the good work. See the International industrial power dealer or Company branch near you about the four International Diesel TracTracTors.

Runways are rough-formed by the TD-18's which also mix the surface with plows, cultivators, and harrows.

**INTERNATIONAL HARVESTER COMPANY**
(INCORPORATED)
180 North Michigan Avenue Chicago, Illinois

**INTERNATIONAL Industrial Powe**

$1.00 for the test. If the meter, on test, is found to be within the percentage of accuracy allowed, which is 2% fast or slow, then the deposit made by the applicant is retained by the Water Department to reimburse it for the expense incurred. If the test shows an error greater than that allowed, the deposit is refunded and an adjustment made as follows. When a meter is found to be fast, with a percentage greater than the AWWA allowable error, which is 2%, then the customer is entitled to a rebate equal to the percentage of error on his last bill. When a meter is found to be slow, greater than the percentage allowable, which is 2%, then the amount equal to the error on the water bill is added to the next water bill.

Any person desiring water from the Water Department must make an application at the City Hall. After the application has been approved, the City Water Department makes the required tap. All water-main tapping is done at the following charges:

| | |
|---|---|
| 1" or less | $1 00 |
| 1¼" | 2 00 |
| 1½" | 3 00 |
| 2" | 4 00 |

All over 2" at actual cost.

The charges above do not include the corporation cock, labor, installation and excavation. These costs must be paid by the applicant in addition to the fees above. The Water Department maintains all pipes between the main and the stop cock or shut-off, but the consumer must maintain all lines beyond.

The Water Department makes a charge each year against each fire hydrant in the city used for the purpose of fighting fires. This amounts to about $30 per hydrant per year.

No charge is made for lines used for private fire protection.

SEYMOUR JUSTEMA,
City Manager.

## Fergus Falls, Minn.

| | |
|---|---|
| Present population | 11,235 |
| Population served | 11,235 |
| Number of active services | 1,843 |
| " " meters | 1,843 |
| " " hydrants | 144 |
| Miles of water main | 26 4 |

The base rates for water service in Fergus Falls vary with the size of the meter on the supply line, taking no account of the number of plumbing fixtures on the premises. The base rates are as follows:

| | Monthly | | Monthly |
|---|---|---|---|
| ⅝" meter | $ 50 | 1½" meter | $2 50 |
| ¾" " | 85 | 2" " | 4 00 |
| 1" " | 1 35 | 2½" " | 6 00 |
| 1¼" " | 1 85 | 3" " | 8 00 |

The rate for water used is $.10 per 1,000 gals., no matter how much or how little water is consumed.

The actual cost of installation of water services is charged by the Water & Light Commission, this amounting to about $15 for a ¾" service to the curb box. The excavation is furnished by the customer, who generally lays the sewer in the same trench.

The lump sum of $3,000 is paid to the Water Department by the city for the installation and maintenance of fire hydrants for public fire service. No charge is made for sprinkler heads for private fire protection.

J. E. YOUNG,
Superintendent, Water & Light Commission.

## Natick, Mass.

| | |
|---|---|
| Present population | 14,406 |
| Population served | 14,300 |
| Number of active services | 3,680 |
| " " meters | 3,825 |
| " " hydrants | 367 |
| Miles of water main | 70 92 |

The water rates in Natick, Mass., are as follows:

| | | | |
|---|---|---|---|
| First | 4,000 cu. ft. per quarter | $ 25 per 100 cu. ft. | |
| Next | 11,000 " " " | 15 " " " | |
| " | 85,000 " " " | 10 " " " | |
| Over | 100,000 " " " | 07 " " " | |

The minimum charge for water per quarter is $1.50. In cases of non-payment of a bill after 30 days from the date of the bill, the superintendent issues a summons to the delinquent, and an extra charge of $.20 is made. At the expiration of 45 days from the date of the bill, the superintendent is required to shut off the water, and not to turn it on again until the bill is paid, with an additional charge of $1.00.

A property owner or tenant desiring water service signs a 4 x 6" application card at the office of the Natick Department of Public Works, agreeing to pay all charges in accordance with the rules and regulations of the Department of Public Works. The card has space for change of owners of the property, and complete data regarding the meter set for that property. The owner is required to furnish the material for the service line from the property line to the building, and the labor from the main to the building. The Department of Public Works furnishes the material for the line from the main to the property line.

There have been no charges for public or private fire hydrants since 1934, and there are no charges for sprinkler heads for fire protection.

A sewer service charge equal to the water charge appears on each water bill, the only exception being that the minimum rate for sewer charge is $1.25 per quarter.

B. G. SARGANT,
Superintendent, Department of Public Works.

## Fredericktown, Pa.

| | |
|---|---|
| Present population | 2,712 |
| Population served | 3,265 |
| Number of active services | 620 |
| " " meters | 554 |
| " " hydrants | none |
| Miles of water main | 5 |

The consumption charge for water used by domestic consumers in Fredericktown includes a minimum fee of $1.00 for a ⅝" meter, and the free use of 500 gals. of water. The charges for further water used are:

| | | |
|---|---|---|
| Next | 5,000 gals. | $.60 per 1,000 gals. |
| " | 10,000 " | .50 " " " |
| " | 15,000 " | .40 " " " |
| Excess | | .30 " " " |

The readiness to serve charges for larger meters are as follows:

| | |
|---|---|
| ¾" | $1 15 |
| 1" | 1 35 |
| 1½" | 5 25 |

A 10% penalty is added to all water bills which are unpaid 10 days after the date of rendering.

No charge is made to consumers for the installation of water services and meters, nor is there any charge for public or private fire hydrants. The charge for private service for sprinkler systems is $50 for a 2" connection, $75 for a 3" conection, and $100 for a 4" connection per year. Private fire hydrants connected directly to the main are billed at $35 each per year.

M. M. GOUGER,
Vice-President, East Bethlehem Water Co.

## Bartlesville, Okla.

| | |
|---|---|
| Present population | 22,000 |
| Population served | 22,000 |
| Number of active services | 3,847 |
| " " meters | 3,847 |
| " " hydrants | 164 |
| Miles of water main | 49 |

Water rates for Bartlesville include a monthly service charge based on the size of the meter, plus a gallonage charge for water used. There is also a monthly minimum charge based on the size of the customer's meter.

These rates are as follows:

Gallonage Charge

| | | | |
|---|---|---|---|
| First | 100,000 gals. per mo. | $.03 per | 100 gals |
| Next | 400,000 " " " | .25 " | 1,000 " |
| " | 1,000,000 " " " | .20 " | " " |
| " | 1,000,000 " " " | .15 " | " " |
| All over | 2,500,000 " " " | .13 " | " " |

Monthly Service Charge

| | |
|---|---|
| ⅝" meter | $ 40 |
| 1" " | 75 |
| 1½" " | 1 50 |
| 2" " | 2 50 |
| 3" " | 5 00 |
| 4" " | 8 00 |
| 6" " | 12 00 |

Monthly Minimum Charge

| | |
|---|---|
| ⅝" meter | $ 1 00 |
| 1" " | 3 00 |
| 1½" " | 6 00 |
| 2" " | 10 00 |
| 3" " | 25 00 |
| 4" " | 50 00 |
| 6" " | 100 00 |

Ten per cent of the current net bill is added to all bills paid after the 10th of the month. If accounts are not paid by the 20th, the service is discontinued, and a charge of $1.00 is made for reconnection.

The Water Department installs services of copper pipe from the main to the meter, which is set 7 ft. outside the property line. All new meter settings are made outside the customer's building. No charge is made for the service or meter at the time it is installed, as the monthly service charge provides for the maintenance and replacement of both the service and the meter every 25 years. The cost of billing and collecting accounts is also included in this service charge.

A charge of $25 each is made for public fire hydrants connected to the Water Department mains.

Private fire service lines are unmetered and are billed quarterly at the following rates:

| | |
|---|---|
| 1½" connection | $10 00 per annum |
| 2" " | 20 00 " " |
| 3" " | 45 00 " " |
| 4" " | 70 00 " " |
| Automatic sprinkler service through 4" line (maximum heads 700) | 70 00 " " |
| Each additional 4" connection for same property | 65 00 " " |
| 4" private fire hydrant | 70 00 " " |

LYLE M. BURNHAM,
Superintendent, Water Department.

# U.S. cast iron PIPE

**Centrifugally or Pit Cast for water works, gas, sewerage, drainage and industrial services.**

CAST IRON *bell-and-spigot* pipe is overwhelmingly the predominant material now in use for water and gas mains. U. S. Cast Iron Pipe is also furnished with plain or threaded ends, in flanged types or with mechanical joints as conditions may require. U. S. Super-de Lavaud *chill-free* centrifugally cast pipe is made in sizes from 3- to 24-inch diameters—U. S. Pit Cast Pipe in 3- to 84-inch diameters.

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# Forward Steps

*Reported by Municipal Officials, Chamber of Commerce Executives, and Others*

## *A Community Adventure in Cooperation*

CLAREMONT, CALIF. — An unusual adventure in community cooperation to improve a business district was recently witnessed in Claremont where taxpayers bonded themselves to widen the main business street and to reimburse property owners for improving store fronts.

This Southern California town of 3,000 population, home of Pomona, Scripps and Claremont Colleges, long had felt the pangs of the automobile age, with its attendant parking problem and restricted mobility on streets first laid out for the horse-and-buggy era.

### Dealing with the Problem Constructively

In this respect the problem was no different from that of other similar cities throughout the country. The unusual aspect is that the citizens finally did something constructive about their problem, considering it a matter of civic interest for the entire community to cooperate in improving the mercantile area.

When the idea was first broached, the plan was to widen by 20 feet one side of the main business street for the length of a block. Then only 60 feet in width and built up solidly on both sides with shops, the thoroughfare presented a constant hazard to shoppers in motor cars. Owners of property on the side of the street to be widened, however, could not see how they could possibly meet the expense of remodeling, or how they could ever get back the additional cost through increased business from patrons in such a small town.

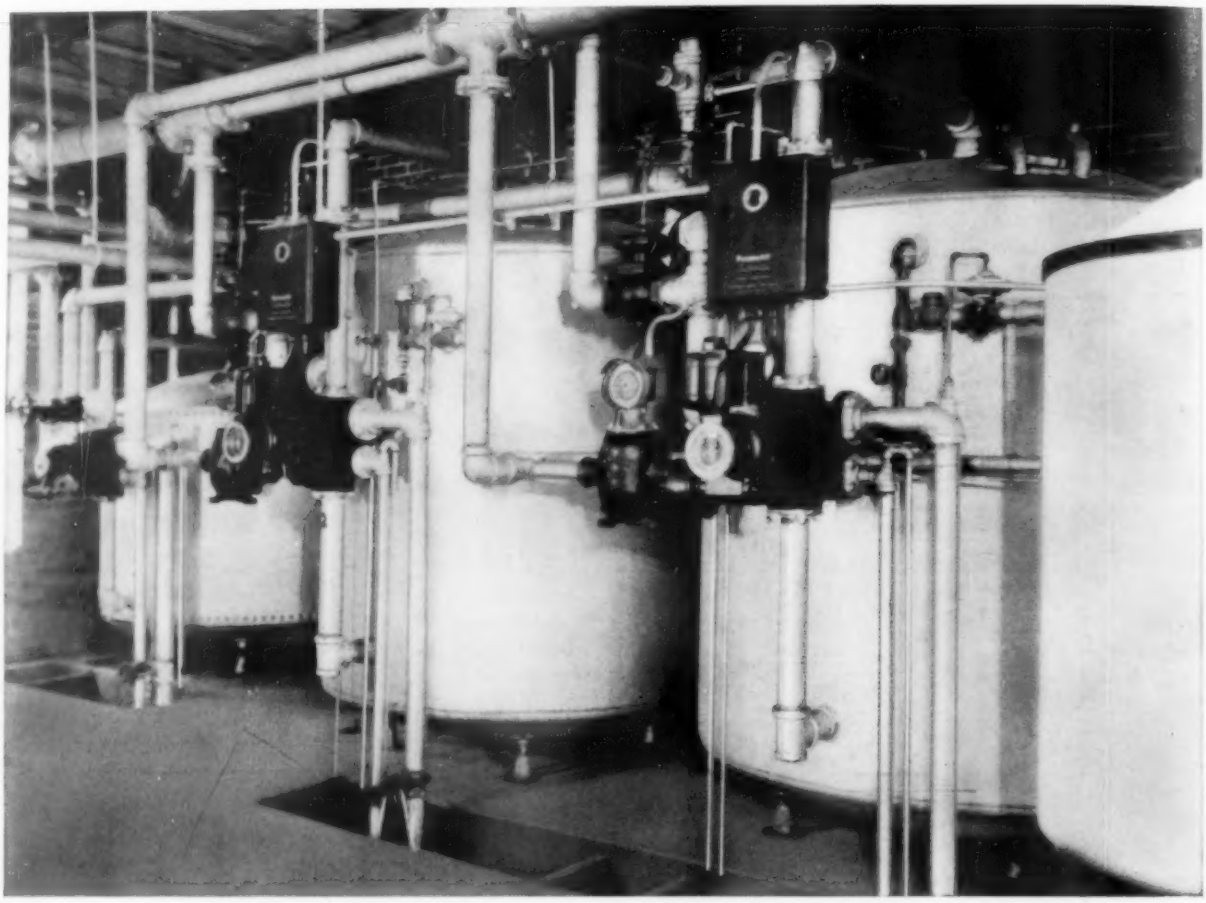
Undeterred by the pessimism of property owners, the Chamber of Commerce employed a professional appraiser, E. H. Allen, of Los Angeles, to undertake the assignment of estimating severance damages and value of a 20-foot strip to be deeded to the city for street widening. The total sum thus estimated came to $15,991, based on replacement of store fronts in approximately the same type of construction as the original buildings.

After conferences between the civic committee, property owners and the City Council, it was decided to present the problem to the electorate in the form of a bond issue for $19,500, which would include cost of replacing the street. At the same time, property owners on the side of the street to be undisturbed by the widening operations agreed to pay a voluntary assessment of not more than $2 per front foot of their property for the cost of new curbs and sidewalks on the side to be improved.

The entire proposal was presented to the citizens through the medium of

*The improvement due to widening Claremont's main business street is shown by these "before and after" photographs*

# Why not Keep Up with the Jonesboros?



A FEW years ago a city near Jonesboro, Illinois, installed a water-treating plant. By comparison, the Jonesboro water supply—with a hardness varying from 14 to 22 grains per gallon—seemed very unsatisfactory.

The people of Jonesboro did something about it. They investigated Permutit. The two Permutit automatic Zeolite Water Softeners shown here were installed. Hardness was reduced to 5 grains per gallon for the 200,000 gallons treated every day. Now Jonesboro has a water supply to be proud of!

## How About Your City?

Do you know how little it costs to "keep up with the Jonesboros"—how easy it now is to remove objectionable iron and hardness from your water supply? New economies of operation may be obtained with the new fully automatic Permutit Water Softener. For booklets, free water analysis, write The Permutit Company, Dept. G3, 330 West 42nd Street, New York.

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the local newspaper. It was estimated that the increase in taxes would be approximately 70 cents per $1,000 of assessed valuation. The total net assessed valuation of the community at that time was $2,806,315. The electorate voted the bonds by a margin of 4 to 1, far exceeding the necessary two-thirds majority.

A local designer was immediately commissioned to prepare a sketch of the entire block as it would appear after remodeling. His plan was drawn after conferences with city leaders and after several inspection tours had been conducted to nearby model architectural projects in business districts.

### Cooperation of a High Order

Each property owner then arranged individually with contractors to proceed with remodeling operations. A two-story brick building was partially razed, part of the space giving way to a service station, and a small remaining single-story section was redesigned for occupancy by a grocery store. Several frame buildings were moved back and new fronts installed to conform to the uniform plan, while two other stores reduced their floor space by cutting the 20 feet from the front. In other cases, inexpensively constructed store rooms were entirely removed and replaced by good construction.

In each instance, however, the amount of severance damages did not cover the cost of remodeling. It was estimated that property owners spent a total of $6,885 out of their own pockets, in addition to the $15,991 received from the bond issue. In a small town the size of Claremont, where an unfortunately large share of retail business is lost to stores of larger cities nearby, the additional cost to property owners was said to represent cooperation of a high order.

A celebration and open house was held when the project was entirely finished, residents of the community joining with merchants in observing the climax of their successful venture in mutual assistance.

With such a promising start in civic improvement, the community is now working to achieve a comprehensive program of modernization, embodying a more ambitious plan for widening other business streets, constructing free parking lots and improving store fronts.

FREDRIC GRAESER.

## *Community Building and Sports Center Dedicated at Carnival*

SAULT STE. MARIE, MICH.—Providing 16,000 square feet for skating and recreation activities, Michigan's only municipally owned community building with an indoor artificial ice rink was last year dedicated by the citizens of Sault Ste. Marie at the third annual Upper Peninsula Winter Carnival.

Pullar Community Building was constructed from funds left by Mrs. Sophia Nolte Pullar, plus a PWA grant of $81,000, and municipal contributions, bringing the total cost to $181,000. Marking the end of an 18-year series of campaigns for an adequate ice stadium and community building, completion of the building in this winter sports center fulfills a need which has been felt ever since the old Sault rink burned in February, 1922.

The building covers an area of more than 30,000 square feet. Permanent bleachers will seat 2,200 people; temporary bleachers in available standing room will care for 300; portable bleachers on the stage will seat 400 more. When the stage of 2,200 square feet is in use, 5,500 people can be seated in the bleachers and the arena floor. Dimensions of the rink, determined after a survey of many skating rinks, are 190 by 85 feet, permitting sufficient space for ice hockey games, and accommodating between 1,000 and 1,200 skaters at a time.

Carnivals have in past years featured a winter parade, colorful queen contests and coronations. This year a brilliant revue was held, and all the Upper Peninsula community winter queens competed for the "Queen of the North" title. Fire Chief Frank F. Trombley, President of the Sault Winter Carnival and Sports Association, was in charge of festivities.

—From an article in *Michigan Municipal Review*.

*Artificial Ice Rink in Sault Ste. Marie's Community Building*

## *Newcomers to Willoughby Receive Welcome and City Information*

WILLOUGHBY, OHIO.—When a new family moves to Willoughby, the Chief of Police calls in person at their house to welcome them to the town, and delivers a letter from the mayor and a card containing "Information Concerning Willoughby for Your Convenience."

The letter reads as follows:

"We are happy to welcome you as new residents of Willoughby, and hope you will soon find yourselves pleasantly associated with one of our churches, fraternal or civic groups, which have contributed greatly toward making Willoughby a fine place in which to live.

"Enclosed for your convenience is a card with information we believe will be helpful to you."

The card lists city officials, tells how to get hold of the fire or police department in an emergency, contains a garbage-collection schedule and rules for preparing garbage for collection, and describes in a few words other city services—municipal light and water, street and sewer service, parks and facilities, and free parking lots and their entrances.

I believe the letter leaves a favorable impression, because I am frequently stopped on the street by newcomers who want to express their appreciation.

C. B. TODD, Mayor.

## *Sample Traffic Signals on Wheels*

"SEE WHAT YOU BUY" is an old slogan, and a number of trailers carrying sample traffic-signal lanterns are putting out from the Marbelite Co., Inc., New York, to bring the actuality of simple traffic signals to the traffic engineering bureaus of the cities. Each trailer will carry a 2-way 3-color signal with aluminum brackets for simpler mounting, and one complete section showing the compact arrangement of the optical parts.

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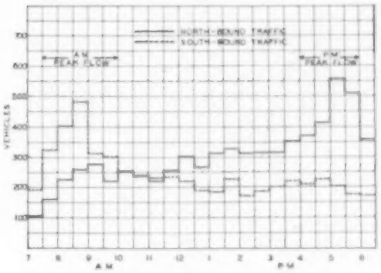
# Traffic Control and Facilitation

Conducted by Publications Committee, Institute of Traffic Engineers, 60 John St., New York
Paul L. Green, Chairman; Louis A. Andriacchi, Frank A. Ashe, Charles G. Beckenbach, Wallace L. Braun, Nathan Chernlack, Carl E. Fritts, Alexander A. Hayton, Otto K. Jelinek, Harry C. Koch, Merwyn A. Kraft, Franklin M. Kreml, Tracy D. LeMay, Harry E. Stedman, Robert O. Swain

## Are Business Streets for Parking—or Motoring?

By Wallace L. Braun
Traffic Engineer, Baltimore Police Department




*Peak Traffic Flows to and from Baltimore Business*

AS IN most other cities in the United States, the streets in Baltimore were planned long before the advent of the motor car. These streets are as they were, no wider except in instances where some sidewalk width has been added to the street bed. Only in rare cases did such reconstruction add a full traffic lane in each direction. The increased width merely made travel safer in the one or two existing lanes.

Immediately after the first World War it was not unusual for a motorist to drive to his office or some store in the business district and find a place to park his car adjacent to his destination. After the day's work or after the longest shopping spree, the car was waiting unticketed where it had been left. What convenience! It probably never occurred to any of these early drivers that a time would come when he would be restrained by law from indulging in such practices.

As automobiles became more numerous, the demand for places to park along the curbs of the streets increased until it was not long before the available space within the business district was filled early each day. The overflow either had to park farther away, making it less convenient to drive one's car, or park double, thereby encroaching upon the moving traffic lanes and thus adding to the general traffic congestion. There can be no doubt that these conditions were a contributing factor in the decentralization of business activity experienced in the early 1920's.

### Time-Limit Parking

The first attempt to control parking in Baltimore was to limit the time any vehicle was allowed to remain in a particular place. This limit was in most cases two hours. It is probable that the greatest benefits derived by such regulations accrued to the merchants, in that a greater turnover in the available spaces was accomplished. This provided an opportunity for more customers to park. It is doubtful that traffic congestion was improved by these regulations. On the contrary, it is probable that it suffered an increase in severity due to those drivers who, for one reason or another, were staying in the business district for a longer period than two hours, leaving one parking space after staying their time limit and driving around looking for another.

Prior to 1926 the Police Commissioner of Baltimore had assumed the authority to designate where and for what period of time parking was to be allowed. In that year, however, this authority was questioned by appeal to a higher court in the case of a conviction in the traffic court for a parking violation. It was found that such authority was unconstitutional and that parking regulations and the designation of one-way streets should be a function of the legislative body of the city. Immediately thereafter the City Council passed an ordinance embodying essentially all the regulations previously invoked by the Police Commissioner.

Included in the ordinance then passed was the designation of that area of the city now known as the central business district. This area is roughly twelve blocks long and nine blocks wide, covering 0.57 of a square mile.

### Peak-Hour Regulations

One of the sections of the ordinance prohibited the parking of vehicles on 14 of the streets in the central business district between 7:30 A.M. and 9:30 A.M., and 4:30 P.M. and 6 P.M. In addition, parking was limited to two hours in any one block of the streets mentioned therein between the hours of 9:30 A.M. and 4:30 P.M.

By prohibiting parking for certain hours during the morning and afternoon it was hoped that (1) the streets were to be made freer for traffic movement during peak periods; and (2) since the ban did not end until 9:30 A.M., which was after the time that most people start their daily work, that the curb space would be reserved for shoppers.

Considerable improvement in parking conditions resulted, but traffic *movement* was not much accelerated, especially on those streets used by both free-wheel and fixed-wheel vehicles. This was principally because the loading and unloading of commercial vehicles was not prohibited during the morning and afternoon peak traffic flow periods. With these activities carried on at the curb, it is not possible for other vehicles to pass the slower-moving street cars on streets 40 feet wide—the average of all the streets in our central business district.

Prohibiting the parking of vehicles during the peak traffic periods caused the all-day parkers to leave their cars around the fringe of the central business district, to the detriment of vehicles coming to and going from this area. This was the condition on all except two of the main thoroughfares leading to the district. On these two streets parking was prohibited for one-half mile beyond the edge of the business district on the right-hand side with reference to in-bound traffic from 7:30 A.M. to 9:30 A.M. and on the right-hand side with reference to out-bound traffic from 4:45 P.M. to 6 P.M. These restrictions were intended to increase the vehicular capacity of these thoroughfares to meet the ever increasing

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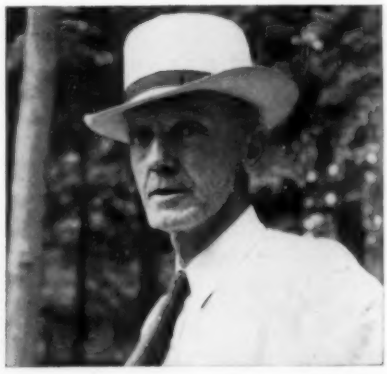
3 Completed section of "Century" pipe line at Langhorne, Pa., before testing and backfilling. No corrosion, tuberculation, or leaky couplings need ever cause this trench to be re-opened. Pumping and maintenance costs will always stay low.



4 Mr. O. F. Stompler, Superintendent of the Langhorne Spring Water Co., who says—"The economy of 'Century' Pipe, in first cost as well as laying cost, has resulted in our reordering fifteen times following our initial experience with the pipe."

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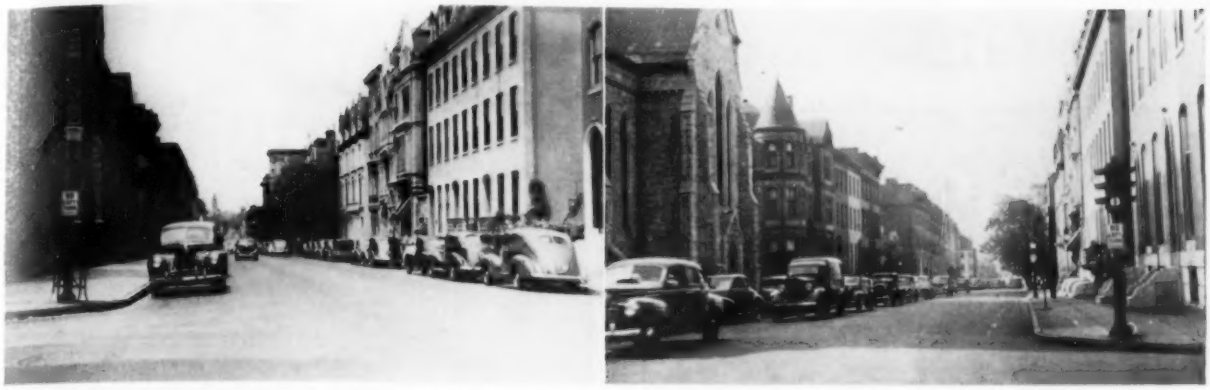

*Left-hand view shows parking on a Baltimore street before 4 P.M. At right, the same location after 4 P.M.*

vehicle volume. Here, again, two full traffic lanes could not be acquired owing to commercial vehicles loading and unloading. Conditions were improved, however, because commercial activities along these streets were much less than in the central business district.

### Loading Zones

Another section of this ordinance of 1926 gave the Police Commissioner authority to grant special "No Parking" spaces in front of shipping or receiving entrances to business houses and in front of hotels, office buildings and apartment houses. These permits were granted under the condition that the spaces so allotted were to be used exclusively for loading and unloading purposes, and parking would not be permitted. To date, approximately 3,000 of these permits have been issued. *Thus it is seen that although the majority of merchants vigorously object to the general prohibition of parking, they inadvertently subscribe to its elimination by making application for such permits.*

### Off-Street Parking

The business depression period beginning with 1930 caused quite a few buildings in the central business district to become vacant. When it was seen that there was no prospect of ever renting them again, the owners of many of the older ones had them razed in order to save taxes. Though the city has thus lost considerable income, it has relieved the parking problem, for in nearly every case the land was converted into parking lots. These lots, together with several large garages, accommodate 9,200 automobiles, whereas the available legal curb space for the same area can take care of 6,500 cars. At 20 cents for two hours and 35 cents for all day, few if any of the operators have failed because of insufficient patronage. Off-street parking of course obviates the need to move every two hours.

Our parking experiences are probably typical for most other large cities.

### "Flow Side" Parking Restrictions

There was no change in the general parking laws in the central business district of Baltimore from 1926 until 1937. In 1937 a new ordinance was passed covering all 29 major streets in the district. This new ordinance was similar to that of 1926 except that the period when parking was *not* permitted in the morning was changed from 7:30 A.M.-9:30 A.M. to 7:45-10; and the afternoon period was changed from 4:30-6 to 4:45-6. This latter position was obviously a step backwards.

At the same time another ordinance was enacted which was definitely a step forward. It affected 11 streets leading to the central business district, and provided that no parking, loading or unloading of freight or merchandise would be permitted on the right-hand side of these streets with reference to inbound traffic from 7:45 A.M. to 9 A.M., or on the right-hand side with reference to out-bound traffic from 4:45 P.M. to 6 P.M. These restrictions applied for a distance of 1½ miles from the limits of the central district. This ordinance provides an approach to the ultimate that can be expected in street use—that of utilizing the whole area from the center to the curb for the movement of vehicles. Prior to its enactment nearly all traffic approaching the business area was relegated to a single lane, resulting in much lost time and inconvenience. Needless to say, there was a speed-up in traffic flow.

In March, 1940, this ordinance was amended to include two more streets. Still more important, a further amendment provided for an extension in both the morning and afternoon restricted periods—now 7:30 to 10 and 4 to 6. These latter restrictions are more in keeping with the actual period of peak traffic flows shown by the chart of actual conditions on one of the streets to which the ordinance applied. It shows the half-hourly average of all the vehicles passing each intersection in both directions within the limits provided by the ordinance.

*Constant patrol by motorcycle officers during the peak traffic-flow periods is necessary in order to maintain a high efficiency of operation of the ordinance.* Quite frequently a motorist will park his car on the prohibited side of the street. The fact that he is issued a summons does not alter the resulting inconvenience and delay caused by forcing the merging of two lanes of traffic into one at that point. Considering the difficulty in enforcing such restrictions without the provisions of an impounding law, the results obtained are gratifying, indicated by the photographs of one of the streets showing parking before 4 P.M. and the same location after 4 P.M. the same day.

### What Is the Solution?

The sequence of the enactment of the foregoing ordinances shows a definite trend towards the general elimination of parking in the central business district. The frequent necessity for commercial vehicles to double-park when making deliveries is a positive indication that the enactment of such an ordinance would be most timely and should be accomplished.

But the elimination of parking is only a part of the solution. Mr. Motorist would still like to go from his home to the business area in the shortest possible time and find a place to park his car convenient to his destination for as long as necessary. Although the present-day parking lot has served a very definite need, many motorists do not use it because of the relatively high fee charged. In many

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instances these lots are not conveniently located. It is the opinion of the writer that the provision of adequate terminal facilities should be a municipal function. It is probable that these facilities could be more efficiently located to the profit of both the motorist and the city government. *The fee should be nominal, yet ample to defray the cost of operation and at the same time reimburse the city for loss in tax revenue resulting from the razing of the buildings occupying the sites required for these off-street parking facilities.*

# Make Transit More Attractive

STREET cars, buses and trolley coaches are used most heavily in congested areas where individual automobile travel becomes difficult and parking facilities are at a premium. Transit passengers need no parking facilities, and transit vehicles are the most economical users of street space in terms of passengers carried.

Regarding off-street parking-lot and garage facilities, it may not be realized that the size of parking structure required to park the cars of the occupants of the average office building would be equal to the size of the office building itself. Even this amount of space would not meet the entire parking demand, because of the shoppers. *Greater use of transit facilities is essential.*

The faster time made by automobile is frequently offset on short trips by parking difficulties. Transit companies need to do still more in modernization of equipment. Based on experience in cities where modern streamlined street cars* have replaced older units on certain lines, over-all schedule speeds on lines have often increased as much as 15 per cent. Actual speed increase on portions of lines is greater than over-all schedule speed increase, since the latter is the result of dividing line mileage by hours of operation, including layover time at terminals.

Traffic regulations on heavy transit streets, such as prevention of left turns and prevention of driving on the car track to the left of safety zones at intersections, will decrease transit delays and increase speeds. The latter regulation will not decrease intersection capacities if curb parking is eliminated opposite safety zones for a sufficient distance from corners.

Skip-stop operation, the elimination of stops at every other street in one direction and at alternate streets in the other direction, could be applied more broadly than now. Transit managements fear public complaint against this operation, but it is believed that city traffic officials should sponsor this method where benefits result.

Parking elimination at certain times and places will decrease transit delays. Enforcement of the ordinance against double parking will of course be beneficial.

A study of traffic characteristics of individual transit lines will often disclose that re-routings of rail and bus lines are possible. Transit managements are of course expected to be aware of these possibilities, but the changes in track, the unwillingness to incur additional undesirable obligations under franchise conditions, and management inertia, may work against a change of route that would benefit both transit and automobile riders.

Street-cars and bus turns in congested areas cause considerable traffic delay. Many of these turns are occasioned by the location of terminal loops in the central area. A great many loop operations could be discontinued. Slack in schedules, which occasion loafing along the line and layovers at terminals, could be taken up, particularly during off-peak hours.

Transit and traffic delays can be lessened by the better supervision of the operators of transit vehicles, who often unnecessarily loaf across signalized intersections, causing unnecessary delay to automobiles. Bus drivers too often fail to pull out of a moving traffic lane for curb loading of passengers. Everything possible should be done to enforce the observance of transit schedules, thus preventing the accumulation of transit vehicles at one point. This is most likely to occur on portions of streets traversed by a number of transit lines. These vehicles delay themselves as well as automobiles.

## Rush Hour

Control of the hours of commercial deliveries in congested areas has already been listed as a traffic aid. This control is especially desirable in morning and evening rush hours.

Everything possible should be done to spread the demand for transportation for short periods each morning and evening. A scheme for reducing peak-hour demands by spreading them over a longer period is the staggering of opening and closing hours of certain downtown businesses. This has had much discussion but too little application in American cities.

In San Francisco in 1931, through the efforts of a private traffic committee, certain firms in the financial district changed to half-hour earlier opening hours in the morning and half-hour earlier closing hours in the afternoon. Beneficial effects were observed by the transit companies, the Yellow Cab Co., the Railway Express Co., the Police Traffic Bureau, and the merchants.

## Cooperation

Transit considerations must be an important item in any urban traffic-engineering program, and improvements should be the joint concern of traffic engineers and transit managements.

Public officals must give transit managements a fair opportunity to make improvements. One possible method is revision of the older streetcar franchises, which managements term obsolete and unfair. Another is restriction of the licensing of competing transportation services. It is believed that such action on the part of public officials would tend to release capital and create incentive which would make purchase of modern equipment possible.

—Based on the July, 1940, preliminary report of the Highways and Transportation Committee of the American Society of Planning Officials.

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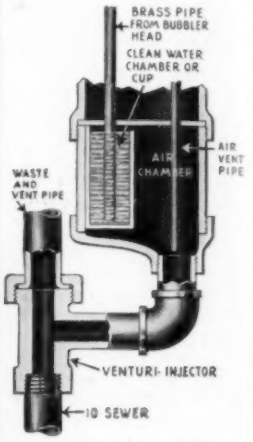


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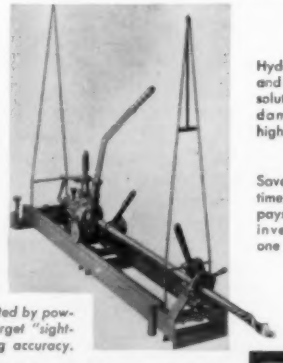

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**Current Items from the Public Administration Clearing House**

## *Municipal Bankruptcy Act Extension*

APPROXIMATELY 1,500 CITIES, counties and other local governments will be authorized to take advantage of the extended Municipal Bankruptcy Act which President Roosevelt signed on June 28, information from the Municipal Finance Officers' Association shows. The current amendments to the Act make it possible for local governments, with the consent of creditors, to adjust their debts until June 30, 1942. The most significant change, according to the Association, is the inclusion of special assessment districts and county governments, hitherto omitted. The amended Act also specifies that the fiscal agent, attorney or other person promoting the composition of debts under the Act shall not receive double compensation for his services—that is, from both the governmental unit and the bondholders.

The number of localities struggling with debt default is fewer by several hundred than it was when the Federal Municipal Bankruptcy Act was first approved, in 1934, and almost 200 fewer than even a year back, exclusive of special assessment districts. This was shown in a survey made several months ago by The Bond Buyer. As of February 1, 1940, a total of 734 cities and counties were in default, while at that date in 1939 the number stood at 824. Six hundred school districts and 137 other districts—water, sanitation, etc.—were also listed as being in arrears with their bonded debt payments, although the actual number is probably much larger, the Association said. As late as 1938, it was estimated that 3,100 local governments—about two per cent of all the units in the United States—were in default. Only a few, however, have reduced the principal of their debts.

Not all defaulting governmental units settle their difficulties by applying the Bankruptcy Act, the Association pointed out. A number of them have taken advantage of the recent favorable interest rates on bonds and have provided for refundings and readjustments. The majority of defaults are adjusted by direct dealings between the interested parties. Other factors, such as "cash basis" legislation in New Jersey and improved economic conditions in Florida cities, have aided recovery in the worst of the default areas.

## *Virginia Adopts New System of Highway Pavement Markings*

DESIGNED TO ELIMINATE head-on and side-swiping collisions, a new plan for highway markings in Virginia provides for a varying arrangement of solid and broken lines to designate places where vehicles may and may not cut over from the right-hand traffic lane, the International Association of Chiefs of Police states.

The system uses single broken lines on two- and three-lane highways, except on hills, curves and intersections. A double solid line is used in the center of a four-lane highway, and the lanes on each side of the double solid line are divided by single broken lines.

The Virginia Highway Department reports that owing to the guide lines and the specified cross-over areas designated by the broken lines, the urge by motorists to cross indiscriminately has been curbed and many collisions averted.

## *City Sick-Leave Policy Successful in Sacramento*

A NEW SICK-LEAVE POLICY for city employees of Sacramento, Calif., has justified itself after six months' trial in terms of improved employee morale and money savings, the Civil Service Assembly of the United States and Canada has reported. The plan has now been made permanent.

Like most cities, Sacramento provides for a maximum number of days of sick leave that may be used in any one year, allowing the accumulation of all unused days to build up a reserve. All employees are given a basic allowance of 15 days a year after the first year of service.

The new sick-leave ordinance, devised by the City Manager, calls for investigation of all cases of sickness by a city physician, and a medical report from their own physicians by employees absent for more than a week. Under the plan, when an employee reports "off sick" to his foreman or supervisor, the Department notifies the City Manager's office before 10 o'clock the same day. The Manager's office calls the city physician, who makes a house call on each of the reported employees sometime during the day. He reports by telephone to the City Manager's office in the afternoon. If the "sick" employee is not found at home, he must show proof of his whereabouts and submit evidence of illness. A proved malingerer loses his pay for the time absent.

Inauguration of the new sick-leave plan was the result of a three-year study which showed that from 1935 to 1938 there had been a gradual increase in the annual cost of sick leave from $23.68 to $32.80 per employee. The study also found evidence of malingering among some employees who were frequently absent and "noticeably increased resentment on the part of conscientious employees who felt that the malingerers were apparently able to take advantage of existing sick-leave provisions and get away with it." During the first six months the plan was in effect, sick-leave costs for the 1,050 employees of Sacramento went down $7,464—a reduction of 36 per cent. The saving occurred mainly by reduction of unnecessary sick leaves.

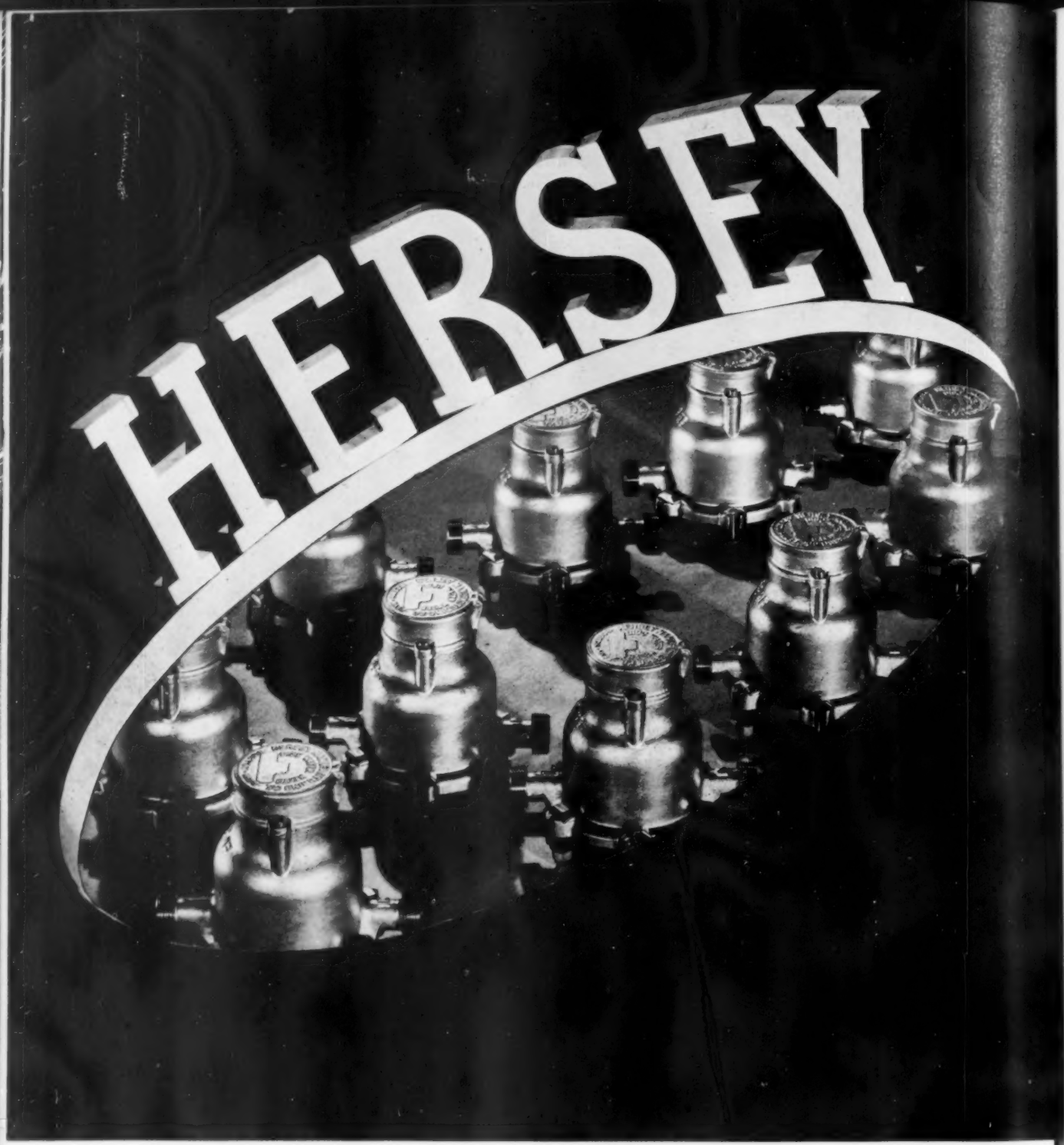
Employees in general are said to approve the sick-leave plan, and now consider sick leave a protection in case of need rather than a benefit to be conveniently used whenever wanted, according to the report. The city physician's call has proved helpful in some cases in recognizing a serious condition of illness, which the employee's own doctor is immediately called to attend.

The investigations cost the city little in comparison to savings, the report states. The investigating physician is retained by the city on a half-time basis at a salary of $70 a month. He makes an average of two calls a day.

## *Tax-Forfeited Property in Iowa Put to Quick Use*

THROUGH AN AMENDED TAX-TITLE LAW enabling counties to purchase and dispose of tax-delinquent property, Polk County, Iowa—city of Des Moines—has within the last few years acquired land for a number of municipal purposes, sold several hundred parcels at a profit, and encouraged local home building, a report to the American Society of Planning Officials shows.

Polk County has a real estate department, set up after enactment in 1935 of the "scavenger tax-sale law," which allows counties to acquire title to tax-delinquent land for the use and benefit of other taxing bodies. The department determines whether prop-

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erty acquired by tax sale can be put to public use or whether it should be offered for sale. Among properties so converted during the past five years were a greenhouse, which was turned over to Des Moines for use as a municipal greenhouse: a large tract in the center of Des Moines with a natural lake, now made into a municipal park; land for a hospital site; and a considerable amount of property along street developments.

In 1939, the real estate department sold 694 parcels of land at an aggregate sale price of $66,881, which was $6,465 in excess of the amount of tax delinquency, interest, costs and penalties. During the same year 186 permits were issued for construction on vacant lots sold by the county, with a combined building value of $553,000. Many of the cheaper lots falling to the county were sold to people of limited income for $50 apiece, enabling such purchasers to build a home and become property owners when otherwise it would have been beyond their means.

The scavenger tax-sale law was designed, primarily, to reclaim tax-delinquent lands for the tax rolls. Although certain concessions are granted former owners of tax-reverted land, the bids of "outsiders" must at least equal the amount due in general taxes, interest, costs and penalties before they will be recognized as legitimate bids.

## *School Fire-Prevention Program in Dallas*

A SCHOOL FIRE-PREVENTION EDUCATION PROGRAM, enlisting the cooperation of a local civic club, the Fire Department and the Dallas Fire Prevention Council, has been inaugurated in Dallas, Texas, as part of a two-year campaign to cut fire losses, according to the International City Managers' Association.

The Dallas Civitan Club and the other organizations have issued an illustrated manual on fire prevention which is distributed to school children as well as to the general public for study, and includes lessons on fire hazards and information on the history of fire protection and fire prevention.

School children enroll in a Junior Fire Prevention Council, receiving an inspector's badge and a membership card. Promotions to the rank of lieutenant or captain are earned by correcting fire hazards anywhere in the city, and turning in a record form signed by the occupant of the building where the hazard was found. At the end of the year the pupil who has done the most to further fire prevention will receive a gold badge and the title of fire prevention chief for all the schools. The pupil in each of the 68 city schools who has corrected the most hazards will be named battalion chief of his school for the next year.

## *City Summer Camps in National Forests*

FIVE SUMMER VACATION CAMPS—four of them on mountain sites in national forests—provide an outstanding feature of the recreation program of Oakland, Calif., the International City Managers' Association reports.

This year marks the twentieth summer of operation for Camp Tuolumne, 125 miles from the city, the oldest municipal camp operated by Oakland. Camp Tuolumne and another camp in the Feather River region are designed to permit family groups the enjoyment of mountain vacations on a cost basis. Adjoining the family camps are two camps for boys and girls, and a camp for working girls who lack money or time for mountain vacations has been established 12 miles from the city on municipal golf course property.

The family camps are equipped with central washrooms, rustic main buildings and floored tents. Many kinds of recreation—outdoor games, horseback riding, swimming, fishing and handicraft—are available in all the camps. Weekly fees at the family camps range from $5.25 for children under five to $12.25 for persons over eighteen. Single meals and a night's lodging are also available, daily fees ranging from 75 cents to $2.40. Fees at the children's mountain camp are about $10 per week. Besides covering food and equipment, these charges cover the salaries for the summer season staff and year-around caretaker, and for maintenance and replacement.

San Francisco has a large camp on city-owned land in a national forest.

Municipal camps are found in national forests in other parts of the country. The city of Phoenix, Ariz., for example, recently completed a vacation camp in the mountains, 91 miles from the city, on 4,000 acres of land leased from the Forest Service, spending $120,000 for improvements such as water supply, a sewer system and recreational facilities.

# City Manager Appointments

P. I. Austin has succeeded C. H. Gray as City Manager of Terrell, Texas.

F. T. Blackwell has replaced F. C. Dickey as City Manager of Hollywood, Fla.

Louis B. Cartwright has succeeded Harold V. Baker as City Manager of Rochester, N. Y. Mr. Cartwright has been City Comptroller for the past two years and a member of the Finance Department for twelve years.

Harold V. Erickson has succeeded E. J. Allison as City Manager of Hays, Kans.

Elmer Long has succeeded F. M. Pfrimmer as City Manager of Porterville, Calif.

Lee H. Powell, former Manager of Tyler and Temple, Texas, has been appointed City Manager of Sherman, Texas, to succeed W. Morgan Works, recently promoted to Longview.

Roger Tucker has become City Manager of Muskogee, Okla. He succeeds H. A. Von Unwerth, who resigned because of ill health.

Harold B. Vasey, a member of the personnel staff of TVA, has been appointed City Manager of Montrose, Colo. He succeeds Robert A. Finlayson.

Ben Freudensteim has replaced Robert Runyon as City Manager of Brownsville, Texas.

E. H. Waterhouse, who has been Acting City Manager for the past several months, has permanent appointment as City Manager of Huntington Woods, Mich.

CLARENCE E. RIDLEY,
Executive Director, International City Manager's Association.

# The Municipal Bond Market

Recent sales of new issues from July numbers of *The Bond Buyer:*

| Amount | Borrower and Purpose | Rate (%) | Term (Years) | Basis (%) |
|---|---|---|---|---|
| $365,000 | Dauphin Co., Pa., Court-House | .5 | 1.5-1.85 O.-A. | .35 |
| 250,000 | York, Pa., Improvements | 1.5 | 8-17 Ser. | 1.33 |
| 150,000 | Revere, Mass., Municipal Relief, Act of 1939 | 1.75 | 1-10 Ser. | 1.61 |
| 2,000,000 | Cook Co., Ill., Forest Preserve Dist., Land Acquisition | 2.25 | 5-20 Ser. | 2.11 |
| 145,000 | Oxford, Pa., Sewer | 2.25 | 19.16 Avg. | 2.18 |
| 225,000 | Kearny, N. J., Sewer, Equipment, and School | 2.25 | 9.66 Avg. | 2.23 |
| 150,000 | Sioux City, Iowa, Airport | 2.25 | 11.33 Avg. | 2.23 |
| 425,000 | Richland Co., S. C., Hospital | 2.5 | 12 Avg. | 2.38 |
| 100,000 | Berywn, Ill., School | 3 | 15.33 Avg. | 2.85 |
| 108,000 | Pensacola, Fla., Water Revenue of 1940, Certificates | 3 | 6.85 Avg. | 2.87 |
| 742,000 | Muskingum Watershed Conservancy District, Ohio, District | 3 | 2.16-16 O.-A. | 2.88 |
| 305,000 | Atlantic Co., N. J., County Buildings | 3.5 | 10.33 Avg. | 3.5 |
| 127,332 | Collinsville, Okla., Refunding | 4 | 7-20 Opt. | 4 |

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Prepared by
FRANK B. WILLIAMS
Author of "The Law of City Planning and Zoning"

# Zoning and Planning Notes

With the cooperation of
EDWARD M. BASSETT
Author of "Zoning" and of "The Master Plan"

## *Retroactive Zoning—Non-Conforming Use—Parking*

NEW YORK.—*Bazinsky v. Kesbec, Inc.*, 259 App. Div. 467 (May 3, 1940*).—The plaintiffs are owners of two garages situated some distance from a parking lot operated by the defendant. The district in which all the properties involved are located is a business district under the Building Zone Resolution of the city of New York. Since the Resolution was adopted, in 1916, business districts have been restricted against occupancy by garages for the storage of more than five cars. In 1935 an amendment was adopted to the Resolution extending to open lots its restriction against the parking of cars in buildings.

Plaintiff's garages were erected after 1916, but prior to 1935 under a permit or variance granted by the Board of Standards and Appeals on the ground that unnecessary hardship would ensue if the Resolution were enforced against plaintiffs. Defendant has been refused a variance because of the proximity of its parking lot to a public school.

Prior to the amendment of 1935, the parking of cars, as distinguished from their storage, was not prohibited in a business district. Defendant operated its parking lot and expended $7,000 in its improvement for parking, some years before 1935.

This is an action by plaintiffs for an injunction against the defendant to prevent the defendant from continuing the use of its lot in the business of parking.

Defendant contends that its prior investment in permanently improving its premises solely for parking purposes gives it a vested property right in the continued use of this property for this purpose, and that the amendment of the Zoning Resolution passed after such investment had been made may not be construed as applying to it; otherwise defendant's constitutional rights will be violated.

With regard to prior cases, it is to be noted that the original Zoning Resolution, when adopted in 1916, contained a saving clause protecting uses which had begun prior to 1916, and thus was not retroactive in its effect. When the amendment of 1935 was adopted, however, no such saving clause was inserted concerning the business of parking cars begun prior to 1935. On this point the Court decides that the amendment of 1935 was intended to be retroactive, and is not unconstitutional on that account.

There remains the question as to whether plaintiffs have the right to maintain this action for an injunction. The Resolution provides that it may be enforced by the Tenement House Commissioner, the Superintendent of Buildings in each borough, and the Corporation Counsel.

Plaintiffs have brought this action as private property owners upon the theory that they have suffered special injury by reason of defendant's violation of the parking provisions of the Zoning Resolution. The Court below found that the maintenance and operation by defendant of its parking space was in direct competition with the plaintiffs, and that plaintiffs have suffered special damage and will continue to do so, as a result.

The Court disagrees with the conclusion that under such ordinances plaintiffs are entitled to equitable relief. In its opinion it was never intended that the Zoning Resolution should be used by one non-conforming property owner against another to stifle business competition.

In arriving at this conclusion, it is not necessary to hold that the enforcement of the Zoning Resolution by the Superintendent of Buildings and the Corporation Counsel exclusively is the right of an individual who is in the particular class of persons for whose benefit the Resolution has been adopted, if suffering special damage has been recognized. Thus it has been ruled that the owner of a one-family dwelling in a zone that was restricted to such dwellings was entitled to an injunction against a person intending to erect an apartment house in such restricted zone. But the plaintiff in such a case was conforming to the use to which the area was restricted, and attempting to prevent another from injuring him by a non-conforming use. The present plaintiffs are not similarly situated. Although they have obtained a variance authorizing them to use their property for a non-conforming purpose, the nature of the use to which they are putting their own premises is as opposed to the objects of the Zoning Resolution as is defendant's use of its property.

The object of zoning ordinances is to protect the public health and safety and to preserve the character of neighborhoods by uniform and limited use of them in the interest of the public generally. The purpose of a variance is to prevent unnecessary hardships; but there can be no claim that plaintiffs are seeking to protect the public health, safety or general welfare.

Plaintiffs, therefore, as non-conforming users are not persons for whose benefit the restrictions contained in the Zoning Resolution were adopted, and are not entitled to damages, or injunctive relief.

From this decision one judge dissented on the ground that: "A suit in equity may be maintained to restrain the violations of a statute enacted for the protection of the public by one who is injured in person or in property by its violation. Plaintiffs proved that they suffered and will continue to suffer special damages by virtue of the illegal use and operation by defendant of its property."

*EDITOR'S NOTE.—This case in the Court below was summarized in our Notes for May, 1940; but the case in this Court brings up so much which is new and important that it has seemed worth while to give it with considerable fullness here.

## *One-Family Residential Zoning Districts*

NEW YORK.—The daily papers report a decision in the Supreme Court ruling that the creation of a residential zone in which new apartment houses are prohibited is beyond the existing charter powers of the city of New York. This type of district, common in other parts of New York State and other states, was first established in New York City in 1938.

The decision was rendered on the application of Arlington C. Hull to Edward P. Leonard, Building Superintendent of the borough of The Bronx, for a permit to construct an apartment in Fieldston, Bronx, in a G area district in which it was provided that only one-family houses could be built. In ruling that the Building Superintendent was wrong in refusing the permit, the Judge says in part:

"It is conceded that no provision of the New York City charter administrative code or other local law expressly confers upon any agency the power to rezone on the basis of density of population.

"Respondent urges, however, that such power was conferred on every city by the provision of Paragraph 20, Subdivision 24, of the General City Law and that nothing contained in the New York City charter thereafter adopted repealed it, either expressly or by implication.

"Time it is that the city of New York is enabled under the General City Law provisions to restrict the use of property to single-family dwellings. That power, however, and the provision conferring it are not self-executing, nor has it been delegated to any of the city's agencies. The failure to do so leads to the inescapable conclusion that this city has not elected to avail itself thereof."

## *Variance*

NEW YORK.—*Matter of Fortuna v. Murdock*, (Appellate Division, Supreme Court, June, 1939).—The premises in question were being used for the stabling of horses, and it was claimed that this use had existed for over thirty years. The owner proposed to demolish the stable and to build a modern gasoline service station on the site. As the property was situated in a business zone, the erection of a gasoline service station was expressly prohibited by the Zoning Resolution. The Commissioner of Buildings accordingly denied the owner's application for a permit for such a building, and he applied to the Board of Standards and Appeals for a variance under the hardship clause. The Board granted the application for a variance, stating that conditions warranted favorable action because of the existing non-conforming use, which was more objectionable than the

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| Benton, Ill. | Painesville, Ohio | Decatur, Ill. |
| Boise, Idaho | Rochester, Pa. | McKeesport, Pa. |
| Buffalo, N. Y. | San Diego, Calif. | Nyack, N. Y. |
| Champaign, Ill. | Sandusky, Ohio | Oklahoma City, Okla. |
| Cleveland, Ohio | Springfield, Mo. | Richmond, Va. |
| Ebensburg, Pa. | State College, Pa. | Warren, Pa. |
| Elmira, N. Y. | Sudbury, Ont., Canada | West Palm Beach, Fla. |
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| Longview, Texas | York, Pa. | |

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proposed use could possibly be, and the fact that the balance of the block front was already used as a gasoline station, which would handicap a conforming development of the plot.

One of the objecting property owners obtained an order of certiorari for a review of this action by the Supreme Court. The Court affirmed the determination of the Board, and an appeal was taken to the Appellate Division.

The Appellate Division reversed the order of the Supreme Court and annulled the decision of the Board of Standards and Appeals, stating:

"The Board of Standards and Appeals exceeded its jurisdiction when it granted the variance described. There was no proof before the Board, and none appears in this record, justifying the conclusion as to the premises involved that there are either 'practical difficulties or unnecessary hardships in the way of carrying out the strict letter of the provisions of' the Amended Building Zone Resolution (New York Code of Ordinances, Appendix B) as it affected those premises, within the purview of Section 21 thereof, as judicially construed. The premises are zoned for business. A gasoline service station is expressly excluded. The premises before the adoption of the Building Zone Resolution were used for years, and are now being used, for the stabling of horses. The proof was to the effect that a modern gasoline station would be more conducive to the welfare of the neighborhood and to the general public welfare than the present unsightly stables, as to which a vested right to maintain the same existed in the owner. In effect, the Board assumed to change the business zone, legislatively established for this property, by permitting a prohibited use thereof. That the Board was without lawful authority so to do, upon the evidence and the showing otherwise in this record, is well established."

From Planning Bulletin of Regional Planning Association of New York.

## *Non-Conforming Use—Abandonment*

WISCONSIN.—*State v. Hunt*, 291 N. W. 745 (Supreme Court, May 7, 1940).—This case is certiorari to review the action of the Board of Appeals. Prior to the enactment of the zoning ordinance the building in question was constructed and used as a college fraternity house. By the ordinance the lot upon which it was built was placed in a single-family residence district, and the building became a valid non-conforming use. After being so used for a number of years, the building was rented for single-family use for several years for a sum not sufficient to provide a reasonable return on the value of the property, with the intention that the non-conforming use should be resumed when opportunity therefor should arise.

*Held* by the Court that the Board of Appeals was right in ruling that this did not constitute an abandonment of the non-conforming use so as to prevent its resumption; in so ruling the Court saying in part:

"When certiorari is invoked to review the action of an administrative board, the findings of the board upon the facts before it are conclusive if in any reasonable view the evidence sustains them. * * * The view of the Board that the owner did not intend to abandon the right of use of the building as a fraternity house, but that the use of it for a residence was intended to be only temporary until opportunity should arise to sell it for that purpose, must therefore be upheld. * * *

"* * * Such cessation as is involved in this case and such temporary use of the premises as a single-family residence did not, as the Appeal Board decided, amount to a 'voluntary relinquishment or abandonment' of the original non-conforming use. Such change of use as the owner permitted was practically forced upon it by circumstances over which it had no control and does not 'connote a voluntary completed act of abandonment.'"

## *A Correction*

These Notes in the July issue (p. 101) attributed to New York the case of *Schloss Poster Advertising Co., Inc., v. City of Rock Hill*. The attribution should have been to South Carolina. The citation, 2 S.E. 2d, 392, was correct. The case is also reported in 190 So. Car. 92. It was on appeal from York County, S. C.

# Housing Shortage Endangers Defense Program

TO avoid indefinite delays in filling defense orders because industries cannot expand without homes for new workers and their families, the National Executive Committee of Housing Authorities (Tower Building, Washington, D. C.) has made the following recommendations to the President's Advisory Commission to the Council of National Defense:

1. Funds must be provided immediately for national defense housing projects to be undertaken with the approval of the President upon a determination by him that there is an acute shortage of housing in the locality involved which impedes the national defense program. When Congress recently authorized the building of defense housing it recognized the need, but that legislation did not authorize the additional funds to carry the program forward. It takes at least six months to plan and build projects. Action should therefore be taken at once on S. 591, which has passed the Senate and is now pending in the House to make funds available now to start such defense housing projects.

2. National defense orders should be placed only where housing can be made available when needed for the workers to be engaged in defense industries to assure that the orders will be filled on schedule.

3. Local authorities should extend the facilities of housing projects now under construction to include, where possible, families of defense workers in localities where there is an urgent need for housing for such workers.

4. Local authorities should immediately formulate their defense housing projects in a manner which will achieve speed. In undertaking such projects, the USHA and local authorities should work in close cooperation with the War and Navy Departments and the President's Advisory Commission. Local authorities should select vacant or nearly vacant sites which can be purchased immediately, which have no foundation or construction difficulties, and which will not raise controversies as to their propriety for the intended purpose. Where feasible, types of construction should be selected for defense housing projects which are faster to design and build than ordinary types, and any materials should be used which will make for speed.

5. Defense housing projects should be permanent in character wherever feasible, so that after the present emergency American communities will have assets of lasting value that can be converted into low-rent housing projects for families living in slums.

6. Projects should be located where there is a probability of their being used throughout their life. In locating housing projects, dangers from the bombing of military objectives should be avoided to the greatest extent possible.

7. Defense housing projects should be developed wherever feasible through the local authorities rather than having USHA embark on the direct construction of projects. USHA should undertake the direct construction and operation of such projects for persons in national defense activities only where there is no existing local authority which is able to operate effectively.

8. In the programs of local housing authorities, primary emphasis should be laid on projects for persons in national defense activities, but other public housing projects for slum dwellers should not be interrupted. The provision of housing for national defense workers is of first importance, but the provision of decent housing for slum dwellers is also of great importance because good homes are a vital line in the defense of the democracy.

9. The cooperation of labor should be enlisted in the supply and re-allocation of skilled workers where needed in connection with national defense housing.

10. The requirement for elimination of substandard housing should be suspended on defense housing projects until the passing of the emergency.

11. Due to shifts in population and changing housing conditions, periodical housing surveys should be made by local authorities, so that there will always be available current data regarding available housing and rentals. The Census Bureau should quickly release to local authorities the 1940 statistics relating to housing needs and shortages.

12. As an essential part of the defense housing program, housing should be provided for the families of enlisted men (excluding officers) and War and Navy Department employees assigned to duty at military or naval posts.

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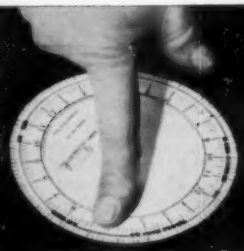

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## Economical Maintenance

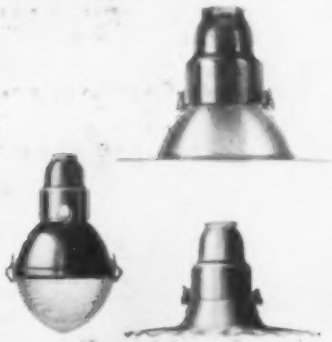
## with SPHEROLITES

Spherolites combine effective lighting with easy, economical *servicing in the field* that saves you time and money. You relamp the Spherolite, clean its reflector, replace or clean its glassware *in the field* . . . no need to return the Spherolite to the factory for such replacements or repairs. Why not start now to get this economy of maintenance combined with effective lighting and longer service life that Spherolite luminaires assure.

**EASY TO DETACH** Spherolite glassware for cleaning or replacement in the field. Spherolite's toggle latches are easy to open, make a positive seal when closed.

**EASY TO RE-LAMP** the Spherolite, especially when you specify this hinge and automatic latch. Also makes it easy to clean the reflector without removing the glassware.

**EASY TO SERVICE** inside the hood. Supporting chain prevents detached Spherolite reflectors from dropping down while wiring, cleaning, etc.



**CONVERTIBLE** . . . Radial bowl and other type reflectors easily attached to Spherolite hoods without adapters. Gives your system flexibility.

**LINE MATERIAL CO.** MILWAUKEE, WISCONSIN

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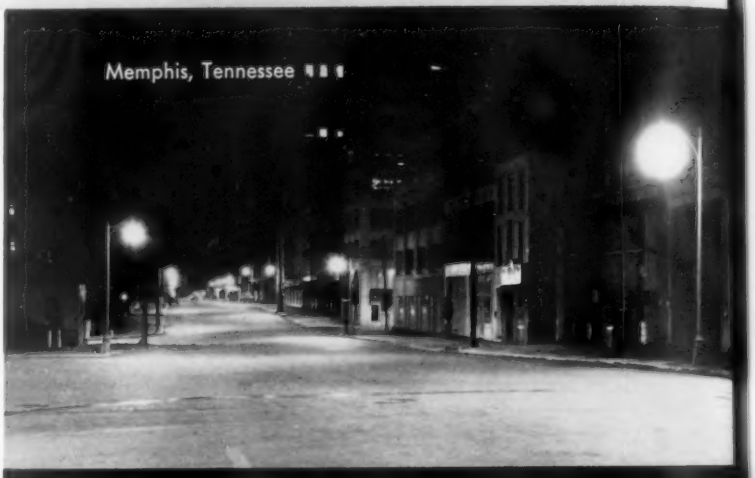
# for Your Boulevards... and Main Thorofares

## the L-M CONTROLITE

High visibility for safe driving and safe walking after dark . . . distinctive appearance during the day... these are the two advantages that make the L-M Controlite an outstanding luminaire for boulevards and leading thoroughfares. Important, too, is the Controlite's sharp cut-off of light on the house side, eliminating objectionable casting of light into upper story windows. Tightly sealed against moisture, dust and insects, easy to service in the field, the Controlite keeps maintenance costs at minimum. Be sure to see a sample of the Controlite as one of the first steps in your boulevard lighting plans.

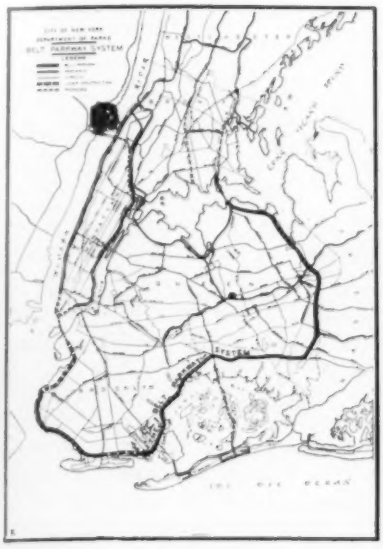


**LINE MATERIAL CO.** MILWAUKEE, WISCONSIN

# Outdoor Lighting

## Streets—Highways—Floodlighting

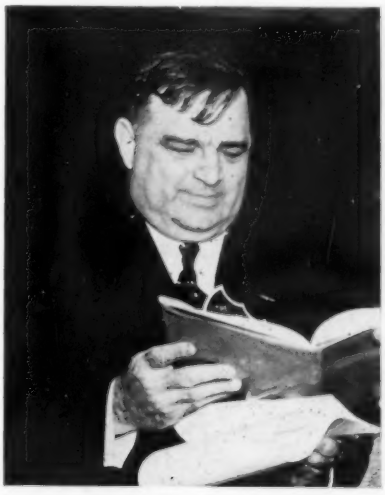
# Sodium-Lighted Shoestring Park Encircling New York



*By* F. H. LaGuardia

**Mayor of the City of New York**

(With the cooperation of the Park Department and the Department of Water Supply, Gas and Electricity.)



MODERN parkway construction in the metropolitan area of New York has its best examples of safety, beauty and ease of travel in the new Belt Parkway. Landscaped parkways, limited to passenger cars, with restricted frontage and without crossings at grade or attendant traffic lights, have proved not only to be the most efficient way of providing for a smooth flow of traffic but also to be great neighborhood assets from the point of view of desirable city growth, especially when provision is made for neighborhood playgrounds, walks and other recreational facilities along their borders, so that they can be enjoyed by local residents and pedestrians as well as motorists.

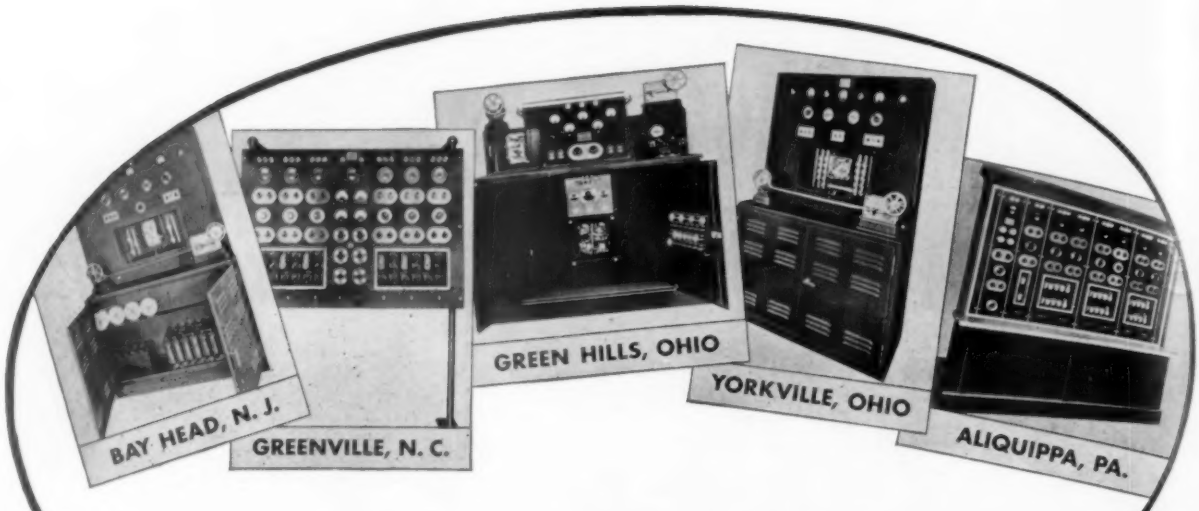
This new 34.9-mile toll-free parkway, officially opened to the public on June 29, 1940, represents the most ambitious undertaking of its kind within any large city. It was originally laid out by the Metropolitan Conference on Parks in 1930. The plan, as laid out by Park Commissioner Robert Moses, called for much more than an automobile roadway. It is in fact a narrow shoestring park running around the entire city and including all sorts of recreation facilities, opening territories which have been dead, relieving the pressure on other parts of the city, connecting the city with the suburbs and the rest of the country, raising tax values, encouraging building, and spreading the population.

The Belt Parkway skirts 26 park areas totaling 3,550 acres, ranging from one-acre playgrounds to major parks of 1,945 acres. In these parks are all types of recreation for all age groups—golf courses at Dyker Beach and Clearview, ocean bathing at Jacob Riis, and bay bathing, which will be developed at Canarsie and Clearview. There will be areas for active recreation of all kinds along The Narrows and at regular intervals along the Parkway. In the larger parks picnicking, boating and horseback riding are provided. Promenades and walks will be built along the Parkway for the entire length, as well as bicycle trails along The Narrows, Jamaica Bay and Little Neck Bay.

The tunnel link from Manhattan to Brooklyn is still missing but is on the way. With the Battery-Hamilton Avenue tunnel and the elevated connection from its Brooklyn portal to Owl's Head Park now under construction, and with the inevitable future tunnel under The Narrows to Staten Island and its connection with the Port Authority bridges to New Jersey, the Belt Parkway will encircle the whole city, connecting the West Side Improvement and Henry Hudson Parkway in Manhattan with the arterial system in Brooklyn by the tunnel, and connecting with the Long Island parkway system as well as The Bronx by the new Bronx-Whitestone Bridge leading to Westchester County, New England and northern New York State. With the completion of the Belt Parkway and the lesser loops in The Bronx and Manhattan, as well as the East River and Harlem River Drives, motorists will be able to encircle Manhattan Island in free-moving traffic streams, and the belt system of the city will have been completed.

Extending from Owl's Head Park in Brooklyn to the Bronx-Whitestone Bridge across the East River in northern Queens, the Belt Parkway includes 31 miles of new construction and traverses two miles of the previously constructed Laurelton and Shore Parkways. For the greater part of its length four lanes of traffic are provided, two each way on two 23-foot divided concrete slabs. Six lanes are provided on two 34-foot slabs for several miles. Future widening to six lanes has been anticipated without alteration of present entrances and exits, and without replacement of bridges. The bridges are of the typical ornamental parkway type, usually with stone facing. Service drives have been provided where necessary to accommodate local traffic.

Beginning at Owl's Head Park, the Parkway follows the Shore Drive around Fort Hamilton to Dyker Beach




# LINED-UP *for SURE-FIRE* Protection with HORNI ALARM SYSTEMS

One after another, progressive cities and towns are bringing their fire-protection services into line with modern safety requirements... yet keeping costs at "economy-budget" levels.

The key to the problem is HORNI fire-alarm signaling equipment. Its up-to-the-minute design means second-saving performance, yet installation and maintenance costs have been cut by eliminating non-essentials... by furnishing a soundly engineered group of equipment adaptable to the precise needs of large or small communities. It includes positive, non-interfering boxes... pedestals and terminals... batteries and rectifiers...switch boards and repeaters... air horns, gongs and bells. For smaller communities too, the HORNI Compositrol unit is a complete Central Station (unattended, with outside audible alarm) in itself.

What's more, because HORNI equipment is distributed by GRAYBAR, you get the extra convenience... the extra surety... of a competent, nearby source of supply. GRAYBAR specialists will be glad to advise you on fire-alarm problems, whether your immediate need is for extension, modernization, or the planning of an entire new system.

Remember, too, that GRAYBAR offers an all-inclusive supply service on electrical and public safety equipment. You'll save time and be sure of performance when you buy the GRAYBAR way. Write for information or assistance on any electrical need.

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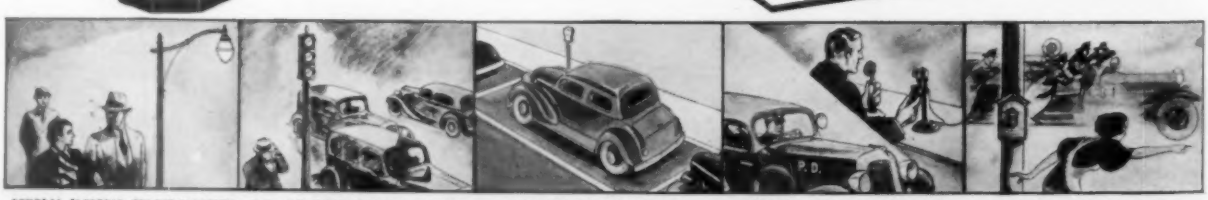



GENERAL ELECTRIC STREET LIGHTING G.E. AND HORNI TRAFFIC SIGNALS KARPARK PARKING METERS WESTERN ELECTRIC POLICE RADIO HORNI FIRE ALARM EQUIPMENT

*Day and night on the Belt Parkway section in Queens, showing Inspector Thompsen standing on the left lane of the right-hand roadway 1,200 feet from the camera.*

*The Belt Parkway encircling New York City is the world's longest sodium-vapor-lighted way. There are 2,200 General Electric 10,000-lumen lamps. In the numerous underpasses along the Belt Parkway, 230-watt incandescent lamps in orange-colored glass globes in the ceilings are used to harmonize with the sodium lighting of the Parkway.*

Park. Much of this section is on hydraulic fill. From Dyker Beach the Parkway skirts Gravesend Bay to Coney Island Creek. A connection with Flatbush Avenue provides a direct route to Marine Parkway Bridge, which crosses Rockaway Inlet and leads to Jacob Riis Park and the Rockaway Peninsula. Leaving Flatbush Avenue, the Parkway skirts the northerly end of Floyd Bennett Air Field and soon becomes a true shorefront drive.

At Aqueduct the Shore Parkway turns into the Southern Parkway section, and makes its way over to Little Neck Bay, on the north shore of Long Island Sound, proceeding due west to join the Whitestone Parkway at the Bronx-Whitestone Bridge approach. The intersection here is of a three-level bridge which sorts out traffic, leaving the Queens end of the new Bronx-Whitestone crossing of the East River, making it possible for motorists from The Bronx either to bear right in the direction of Flushing Meadow Park or to turn left toward Little Neck, the two Long Island Parkways and the rest of the Belt. The Whitestone Parkway permits the Belt motorists to enter the Grand Central Parkway Extension at Flushing Meadow Park and proceed along it to the Triborough Bridge, stopping on the way at La-Guardia Airport.

The route can readily be followed by reference to the map.

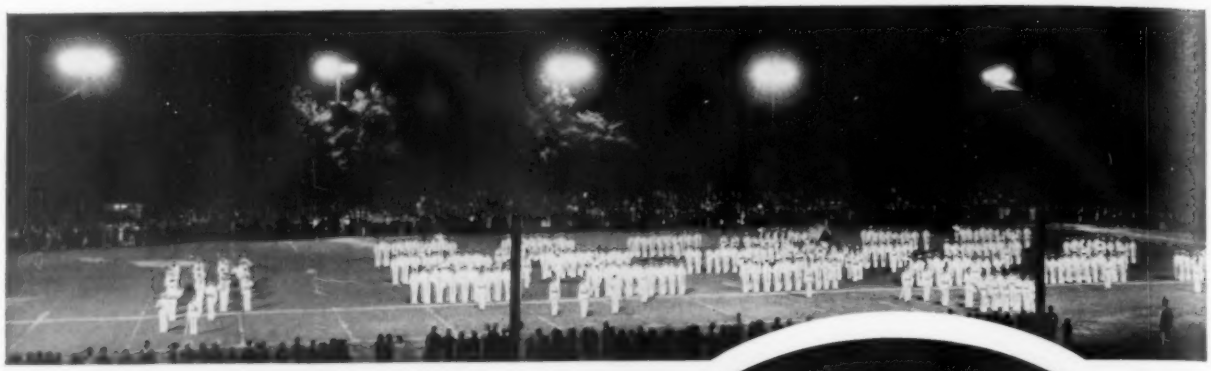
Practically all the land for the Parkway was acquired by the Board of Estimate in March, 1938. A right-of-way through Creedmoor State Hospital was acquired by an exchange with the state, and a section over the border line of Nassau County was acquired by that county in aid of the program. The acquisition was financed almost entirely with long-term bonds.

Although the first of 100 construction contracts for New York's Belt Parkway was not awarded until November 16, 1938, the thoroughfare was opened to traffic 19 months after construction had been started. The project included placing 16,600,000 cubic yards of fill; paving 1,500,000 square yards, and constructing 47 bridges to eliminate highway intersections, 5 bridges to avoid railroad grade crossings, a 2,740-foot viaduct at Coney Island over the tracks of the B.M.T. subway, 6 bridges to carry the parkway over waterways, and 6 pedestrian overpasses. In the Parkway's entire length there is not a single grade crossing, except along the temporary connection through Sheepshead Bay at Coney Island.

The total cost of the 30.74 miles of actual construction was $29,000,000, of which $12,000,000 was a Federal grant approved to supplement the $16,000,000 appropriated by the Board of Estimate; $1,900,000 of city funds was added for the construction of a seawall at Gravesend and for lighting.

Probably one of the most distinguished features of this new parkway is its lighting system having, when the lighting is completed, the world's longest sodium lighting system, designed by the Department of Water Supply, Gas and Electricity. It will be completely installed and in operation by November of this year.

# *Eyes* spend more time *Seeing* when the lighting is good



Good lighting calls for

ALZAK

*REG. U. S. PAT. OFF. ALUMINUM COMPANY OF AMERICA

ALUMINUM

REFLECTORS

ALCOA ALUMINUM

Eyes do less looking for things to see when the lighting is good. Their owners get more enjoyment from night games, spectacles and public benefits. Less effort is required to locate objects. Accidents — which public officials must always guard against — are fewer in well-lighted areas.

Alzak Aluminum Reflectors help you get *good* lighting. Their high reflectivity, obtained by a special electrolytic treatment of Aluminum sheet, assures maximum over-all efficiency. Their long life and ease of maintenance make annual costs low. The smooth, oxide surface of glass-like hardness will not chip, doesn't scratch easily and can be readily cleaned with soap and water.

Alzak Reflectors include a series of finishes; bright, specular finishes or matte, diffuse surfaces. Some are intended for indoor use. Others are able to withstand out-of-door exposure and the corrosive conditions encountered in certain industrial processes. Whatever your use, be sure to *specify the right Alzak finish.*

We do not manufacture reflectors. Names of those companies licensed under Aluminum Company of America patents, and able to take care of your requirements, will be furnished by us on request.

*You can identify a genuine Alzak Reflector by a label affixed to it by the manufacturer. This lists the patents protecting the processes that assure uniform, high quality workmanship. Look for that label when you are buying reflectors.*

ALUMINUM COMPANY OF AMERICA

1945 GULF BUILDING • PITTSBURGH, PA.

Public lighting originated as a check on the activities of robbers and footpads. Today, while still acting as a deterrent to crime, its main purpose is to facilitate the passage of traffic with safety. In view of the anticipated traffic demands which occur in the evening when fatigue and strain after a day's work are having their effect on drivers, it was desirable to install a lighting system to produce a maximum of safety comparable to that obtained during daylight hours. After a thorough study, the sodium luminaire was determined to be the most satisfactory in meeting these requirements. The posts have been installed in a diamond-shaped layout. Each post has two General Electric 10,000-lumen, 260-watt sodium luminaires, mounted 13 feet apart on a cross-arm at a height of 23 feet about the pavement. The posts are spaced 300 feet apart along the central mall, and along the outer edge of each roadway, located half-way between the units on the mall, are single cedar posts.

Access and existing roadways, service roadways, bridges and viaducts have special lighting treatment.

## Columbus Lighting

THE city of Columbus, Ohio, classifies its street lighting as ornamental, utilitarian and miscellaneous. In the ornamental system of 3,013 units there are 288 equipped with five lamps, 133 15,000-lumen units with two lamps, and the remainder with one lamp per unit, all connected to the underground system.

There are 5,569 utilitarian units, of which 4,515 are 4,000-lumen. The luminaires are either open reflector or enclosed pendent type supported by mast-arm or bracket, and supplied by overhead circuit. The remaining units comprise three sodium-vapor lamps, 92 bridge lights, 183 underpass lamps, 10 warning lights, 9 sidewalk and 2 market lights.

We have added 350 new street lights in the last five years. Half of these are 250-cp lights in alleys. We plan to install modern lighting on our main traffic thoroughfares when finances are available and our municipal plant can take the additional load.

This Division makes no charge for street-lighting service, worth $425,000 per year at the average rates paid by nearby cities. The Division takes an annual credit of $284,000, and allows a tax-contribution credit, which makes the net cost for street lighting about $340,000 per year for 10,328,590 kwh supplied to the system's 460 miles of municipally lighted streets.

ROBERT N. TUCKER,
Superintendent, Division of Electricity.

*Hyde Park Municipal Stadium at Niagara Falls, N. Y.*

## Making Night Sports Possible

THE PRESENT POPULARITY of amateur sports is due in large measure to the efforts of municipalities in providing the facilities. The use of public funds for this purpose is a matter of course, for the provision of recreational facilities is as much a function of local governments as the equipment for street lighting, water, police and fire protection.

The popularity of night sports is familiar to all, and the many new floodlighting installations made every season prove how essential lighting has become in recreational programs.

Century-old baseball and the infant softball are the most looked-at sports, and night games draw record crowds. Several years ago the National Electrical Manufacturers Association drew up a set of recommended practices for floodlighting baseball, softball, and football fields, and these are good today.

H. E. LIPPMAN,
Lighting Division, Westinghouse Electric & Mfg. Co., Cleveland, Ohio.

## Lighted Night Bathing

NEW ORLEANS residents who are tied to their jobs by day soon may enjoy night bathing at a floodlighted beach nearing completion on Lake Pontchartrain. Two 100-foot towers, each bearing 36 reflectors of 1,500 watts, illuminate an area approximately 600 feet wide and 1,000 feet long. The Work Projects Administration is doing the work, which consists of a 100 x 200-foot bath-house, a free sand beach, and two riprap groins extending 500 feet into the lake at each end of the beach.

*One of Two 500-Foot Riprap Groins to Prevent Wave Wash on New Bathing Beach Owned by New Orleans*

*One of two 100-foot towers lighting the municipal beach on Lake Pontchartrain, La. Each has 36 1,500-watt reflectors*

## Safety in Sodium

FOURTEEN IMPORTANT INTERSECTIONS in this city have been made as safe by night as they are by day through the use of sodium safety lights developed by the General Electric Co. These have reduced night accidents 75 per cent at these points during the last four years. During the last year the night-accident rate dropped to the day rate.

CLAYTON W. PAIGE,
City Engineer, Alhambra, Calif.

# TRINIDAD LICKED THIS "HIGHWAY PROBLEM"

*When the horseless buggy first careened down the highway at a breakneck 20 miles per hour, it gave the highway engineer plenty to think about. "Could the pavements take it?" "Would the highways they had laid down provide the right surface for these new 'gas wagons'?" Trinidad could — and did.*

# AND IT'S LICKING THIS ONE TOO!

*They're building them bigger and moving them faster than ever today. In congested areas and on high-speed arteries all over the country, Trinidad is still proving itself a top-notch paving surface. It is traffic safe. It is able to stand up under huge volumes of fast-moving, heavy-duty traffic.*

**BECAUSE** Trinidad has certain inherent properties not duplicated commercially in any other asphalt. Its uniformity remains unchanged from generation to generation. It has a remarkable balance between adhesion and cohesion. It contains a colloidal mineral filler that definitely *resists* wear.

Barber Asphalt Corporation manufactures a complete line of highway construction and maintenance asphalts and offers the services of its laboratories to highway engineers. Mail the coupon below for data on the products you are interested in. And address your queries to: Barber Asphalt Corporation, Barber, N. J.

## TRINIDAD NATIVE LAKE ASPHALT

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**BARBER ASPHALT CORPORATION,** *Dept. A-4,*
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*City*_____ *State*_____

# Municipal Law Notes and Decisions

Prepared by National Institute of Municipal Law Officers, Washington, D. C.
John A. McIntire and Charles S. Rhyne, Legal Counsel

### Assessments—True Value

In determining the taxable assets of stock insurance companies, the city must determine the true value of the gross assets of the company, and where book entries are in some instances shown not to reflect actual assets, proof directed toward ascertainment of true value of actual assets must be considered by the Board of Taxation. *Commercial Casualty Ins. Co.* v. *City of Newark*, 12 A. (2d) 156 (N. J. Bd. Tax App. April 2, 1940).

### Bonds—Limiting Suit On

Provision of city ordinance that no action shall be instituted on contractor's bond after expiration of 90 days from completion of work is reasonable and valid. *City of St. Louis ex rel. Glasco Electric Co.* v. *Dunham Construction Co. et al*, 138 S. W. (2d) 707 (St. Louis Ct. App. April 2, 1940).

### Civil Procedure Rules

The rules of civil procedure for Federal district courts as to taking of depositions, and examining witnesses before trial, apply to a city, even though the city exercises a part of the sovereign powers of the state. *Conneway* v. *City of New York*, 32 Fed. Supp. 54 (Dist. Ct. E. D. N. Y. March 6, 1940).

### Competitive Bidding

City of Arcadia could purchase materials used in the erection of a two-way short-wave radio station for use of the city police without advertising for bids, since statutes under which it is organized do not require it to advertise for bids unless the amount exceeds $500. In this case no single item of material purchased for the municipal radio police station exceeded this $500 limit, although all the items for the completed station cost a total of $902.36. *Swamton* v. *Corby*, 100 P. (2d) 1077 (Dist. Ct. App. 4th Dist., Calif. March 29, 1940).

On the general subject of "radio and municipal regulation" see Report No. 62 of the National Institute of Municipal Law Officers which bears that title.

### Debt Limit

The purpose of the constitutional mandate that no city in New York State shall be allowed to become indebted to an amount exceeding 10 per cent of the assessed valuation of the realty of such city is to place a limitation on city borrowing and thus to minimize the consequences to the taxpayers of extravagance in city expenditures. Over-assessment of property in the city of Long Beach when proved by the evidence requires a reduction in such assessments. *People ex rel. Guaranty Trust Co. of New York* v. *Cook*, 18 N. Y. S. (2d) 965 (Sup. C. N. Y. Nassau Co. March 23, 1940).

### Employees

Appointment of Dr. Bertrand Russell to the Chair of Philosophy at City College by Board of Higher Education of City of New York is revoked by Supreme Court where Dr. Russell was not a citizen, had not made application to become a citizen, was not selected by means of competitive examination as required by the civil service laws, and advocated or taught a philosophy in direct conflict with provisions of the penal law of the state of New York. *Kay* v. *Board of Higher Education of City of New York*, 18 N. Y. S. (2d) 821 (Sup. Ct. N. Y. Co. Mar. 30, 1940).

### Fire Protection

On April 16, 1940, the Supreme Court of Rhode Island after first pointing out that the city of Warwick was not legally required to furnish fire protection to its inhabitants, held that the action of the City Council in providing that supervision of the expenditure of money appropriated to the volunteer fire unit should be under the supervision of a committee of the Council, had not delegated to that committee authority to make rules forbidding the expenditure of any part of the money on fire-fighting apparatus. *Greenwood Volunteer Fire Co.* v. *Dearden et al*, 12 A. (2d) 408 (Sup. Ct. R. I. April 16, 1940).

### Hospitals—Liability for Operation Thereof

City was exercising a governmental function in supplying nurses in city hospitals for care of poor and was not liable for injuries to nurse who, when ill in nurses' infirmary, was given injections of decomposed morphine solution. *Volk* v. *City of New York*, 19 N. Y. S. (2d) 53 (Sup. Ct. App. Div., 1st Dept., April 5, 1940).

### Improvement Assessments

A 30 per cent PWA grant from the Federal Government for improvement of city streets is properly deducted before amount of assessment against property owners is determined, because purpose of the grant was to aid the city. *Ward* v. *City of Louisville*, 138 S. W. (2d) 461 (Ct. of App. Ky., Mar. 12, 1940).

### Licenses—Established Dealers

The Court in interpreting terms in ordinance of "established dealer" and "non-established dealer" held that ordinance shows intent of City Council to classify merchants using stalls in public markets as "non-established dealers." Established dealers would pay $100 per year license fee, while non-established dealers pay $250. *Netter et al.* v. *Scholtz*, 138 S. W. (2d) 951 (Ct. App. Ky. Mar. 22, 1940).

In a companion case the Court held the ordinance classification of "established" and "non-established" dealers to be reasonable and constitutional. *Hartman* v. *City of Louisville*, 138 S. W. (2d) 948 (Ct. App. Ky. Mar. 22, 1940).

### Notice of Claim—Torts

Thirty-day limitation on filing of claim did not bar infant from correcting notice of claim and serving verified notice nunc pro tunc on Village Clerk. *Briggs* v. *Village of Peekskill*, 19 N. Y. S. (2d) 11 (Sup. Ct. App. Div., Apr. 1, 1940). See generally "Tort Notice of Claim Statutes—Legal Interpretation and Effect," Report No. 60 of National Institute of Municipal Law Officers.

### Parking Meters

Ordinance of city of Columbia providing for maintenance of parking meters is a valid police regulation as distinguished from a revenue measure. *Owens* v. *Owens, Mayor et al*, 8 S. E. (2d) 339 (Sup. Ct. S. C. April 1, 1940).

For a consideration of the legal and practical problems involved in the installation and maintenance of parking meters by cities see "Parking Meters as City Legal Problems," Report No. 47 of the National Institute of Municipal Law Officers.

### Solicitors

Ordinance prohibiting solicitors from coming upon owner's premises without invitation to solicit orders for sale of goods is unreasonable and void as an interference with legitimate business. *De Berry* v. *City of La Grange*, 8 S. E. (2d) 146 (Ct. of App. Ga. March 12, 1940).

For a list of cases both upholding and invalidating similar ordinances see 5 Municipal Law Journal 23.

### Special Assessments—Charitable Organizations

Property of a school for the deaf, a charitable institution, was subject to its share of the cost of construction and maintenance of a water district, ash and garbage disposal district, fire district and sewer district as against contentions that such cost was "taxes" within statutes giving exemption to charitable institutions from taxes. *People ex rel. New York School for the Deaf* v. *Townsend*, 18 N. Y. S. (2d) 865 (Supt Ct. Westchester Co. March 26, 1940).

### Tax-Anticipation Warrants

Tax-anticipation warrants are not general obligations of the city of Chicago, which issued them, and a holder thereof must depend solely upon collection from the levy anticipated, and a city cannot issue bonds or levy taxes to pay outstanding tax-anticipation warrants. *People ex rel. Lindheimer* v. *Axelrod*, 26 N. E. (2d) 512 (Ill. Apr. 12, 1940).

### Taxation

Payment without protest or without coercion of village taxes based on assessments which were void on their face constituted "voluntary payment" of taxes which could not be recovered. *McCann* v. *Village of Lindenhurst*, 18 N. Y. S. (2d) 952 (Sup. Ct. N. Y. Suffolk Co. March 12, 1940).

### Torts—Defective Sidewalk

Pedestrian injured by fall caused by defects in sidewalk could recover where it was shown by evidence that condition of sidewalk in 1921 was very much the same as it was at the time of accident in June, 1938, so city should have known of the defect. Tree roots had raised the sidewalk, causing the defect. *Berland* v. *City of Hailey*, 101 P. (2d) 17 (Sup. Ct. Idaho, March 30, 1940).

### Statute of Limitations

Right to enforce statutory imposed obligation to maintain or repay amounts extended by city for maintenance and treatment of indigent, infirm and mentally defective persons is a right accruing to the city in its governmental capacity and is not subject to the bar of the six-year statute of limitations applicable to private claims. *In Re Erny's Estate*, 12 A. (2d) 333 (Sup. Ct. Pa. March 25, 1940, City of Philadelphia).

### Taxation

Town trustees could tax inhabitants of territory excluded from the town by unauthorized action of such trustees. *Mullins* v. *Wilson*, 138 S. W. (2d) 484 (Ct. of App. Ky., March 15, 1940).

### Torts

Smooth, slippery ice on sidewalk which was unaffected by artificial causes will not serve as a basis for actual negligence on the part of the city in an action by a pedestrian to recover for injuries suffered from a fall on the sidewalk. *Leonard* v. *City of Muscatine*, 291 N. W. 446 (Sup. Ct. Iowa, April 2, 1940).

### Torts

Where plaintiff stepped into a hole in curb near sidewalk while alighting from automobile—the hole being approximately 14 inches in length, 5½ inches in width, and 5½ inches in depth—there was a question for the jury to determine as to whether or not the hole constituted an "insufficiency or want of repairs" that would render the city liable under statutes of Wisconsin. *Gottlieb* v. *City of Racine*, 291 N. W. 335 (Sup. Ct. Wis., April 9, 1940).

**See the current edition of The Municipal Index, page 609, for index to legal decisions in this department of The American City.**

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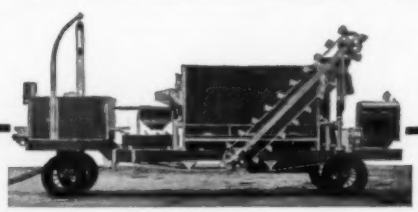

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# Municipal and Civic Publications

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## Emergency Vehicles

*Regulation and Operation of Emergency Vehicles.—Bureau of Municipal Research and Service, University of Oregon, cooperating with the League of Oregon Cities.* 1940. 18 *pp.*

The special regulations governing the emergency vehicle, which can scorn the rules and regulations for common street traffic, is the subject of this bulletin, which describes the different types of control in different cities. They include: exemption from traffic laws and special requirements for operation, as being equipped with some special audible signal, etc.; education of vehicle drivers; special traffic signal systems and routing. One section treats specially of the ambulance as an emergency vehicle.

## Financing Streets

*Trends in Highway Finance.—Bureau of Government, University of Michigan, Ann Arbor, Mich.* 1940. 20 *pp.*

The general trend in financing highways more from motor-vehicle taxes than from general taxes has advanced particularly far in Michigan. This brief study describes the Michigan highway systems—county road, state trunkline and city streets—and how they have been financed in two different periods, from 1922-31, and from 1932-37. Analyses are made of the relation between highway expenditures, taxation and road use.

## Traffic Problems

*Three reprints on scientific measurement in the analysis of traffic problems:*

*A Method for Analysis of the Effectiveness of Highway Signs.—By T. W. Forbes, Bureau for Street Traffic Research, Yale University. Reprinted from* JOURNAL OF APPLIED PSYCHOLOGY, *Vol. xxiii, No. 6, Dec.,* 1939. *pp.* 669-684.

This article suggests, instead of the usual arbitrary and unreliable methods of selecting highway signs, scientific means of measuring legibility—pure and glance; and attention value—target and priority. Procedure is described in detail.

*Legibility Distances of Highway Destination Signs in Relation to Letter Height, Letter Width, and Reflectorization.—By T. W. Forbes and Robert S. Holmes, Pennsylvania Turnpike Commission. Reprinted from Proceedings of the Nineteenth Annual Meeting of the Highway Research Board, Dec.,* 1939. 14 *pp.*

Results of a study of the effect on legibility of width and height of letters and night and day illumination are given in this article. Relation of these factors to maximum legibility distance is analyzed.

*Methods of Measuring Judgment and Perception Time in Passing on the Highway.—By T. W. Forbes. Reprinted from Proceedings of the Nineteenth Annual Meeting of the Highway Research Board.* 13 *pp.*

Methods of measuring the interval needed by a driver to decide whether it is safe to attempt to pass, and results of the observations taken, are presented in this reprint.

## Safety

*Accident Facts,* 1940 *Edition.—National Safety Council, Inc., 20 N. Wacker Drive, Chicago, Ill.* 112 *pp.* 50c.

In 1939, 93,000 Americans died accidental deaths, 8,800,000 were accidentally injured. More than one billion dollars' worth of property was damaged.

These are some of the startling facts presented by text, graph, and table, in this annual publication. Not only are summary facts given, and comparisons with other years, but factors and causes affecting accidents are analyzed for all types of accidents—occupational, motor-vehicle, other public, railroad, aviation, home and school. Prevention is emphasized.

## The Municipal Index

*The Municipal Index and Atlas,* 1940-41.—*The American City Magazine Corporation, 470 Fourth Ave., New York. Sixteenth annual edition.* 615 *pp.* $5.00.

Summaries of significant new developments and a wealth of data and facts in the municipal public works field are efficiently compressed into the ten main sections of this reference annual, and guide to city public works equipment. They consist of: maps of the 48 states, and population figures (1930) for the cities and towns in the United States that have 1,000 or more inhabitants; directories of city officials and consultants brought up to date; and sections on streets and highways—construction and maintenance; water supply and purification; sewage and garbage collection and disposal; lighting and power; public safety, traffic control, fire and police; parks, playgrounds, swimming pools, airports; business machines; publications, legal decisions, housing.

The section on the construction and maintenance of streets and highways contains this year, among other articles, five articles on as many different methods of soil stabilization for street and road bases or for low-cost surfacing. Of particular interest in the water supply and purification section is the compact summary of recent developments and improvements in water treatment and filtration by eight different methods. Street-lighting costs (total, per capita, per mile and foot) for some 600 cities—a much larger collection than last year—are compiled in the section on lighting and power. In the public safety section, the most comprehensive report that has yet been made of parking meters presents experience in all cities that have installed this effective and profitable device for parking regulation. The article, "More Attractive Parks," in the section on parks and recreation, condenses information and suggestions on best park equipment and supplies. Why modern municipal accounting is an essential consideration for city governments is clearly brought out in the business machines section. The bibliography of significant books and pamphlets for the city hall library, prepared with the aid of 18 authorities and experts in 30 respective fields of city government, is the most complete The Municipal Index has ever published, and includes the important titles selected from bibliographies contained in past issues of the yearbook, and from publications issued since the last issue.

Convenient indexes to manufacturers and consultants aid in giving the book its value as a time-saver in solving the municipal official's equipment and supplies problems.

## Government Accounting

*Three procedural pamphlets dealing with specialized phases of municipal accounting have been published by the Municipal Finance Officers' Association, 1313 E. 60th St., Chicago, Ill.:*

*Accounting for Government-Owned Motor Equipment.*—60 *pp.* 50c.

Comprehensive system of accounting for the expense of operating government-owned motor equipment, devoted largely to discussion of the compilation of cost data, and including plans for operating municipal motor equipment through a central bureau. Forms included.

*Accounting for Governmental Supplies.*—60 pp. 50c.

Procedural requirements for accounting for the inventories of materials and supplies owned by cities and other governmental units, including forms.

*Governmental Timekeeping and Payroll Procedure.*—62 *pp.* 50c.

Timekeeping and payroll procedures: getting employees on the payroll; timekeeping; preparation of payrolls; paying employees; individual earnings record.

## Accounting

*Municipal and Governmental Accounting.—By Carl H. Chatters, A. B., Executive Director, Municipal Finance Officers' Association, and Irving Tenner, M.B.A., Staff Accountant, National Committee on Municipal Accounting. Prentice-Hall, Inc., New York.* 1940. *xviii* +794 *pp.* $6.00 *from* THE AMERICAN CITY.

Background material in general public finance and political science supplements the inclusive treatment given in this book to all phases of governmental, and particularly municipal, accounting—different types of funds, revenues and expenditures, assets and liabilities, reporting, Federal accounting, and governmental accounting terminology. The wealth of systematic information in the volume is based on the broad and expert experience of the authors, on contact with officials, and on the study of public reports.

## Planning for Disaster

*A Major Disaster Emergency Plan.—The Educational Committee in cooperation with The Committee on General Disaster Emergencies, International Association of Fire Chiefs, 24 W. 40th St., New York.* 1940. 49 pp. 15c.

During the last 20 years, the Red Cross has functioned in a total of 2,358 disasters, natural and man-made, expending for relief $125,473,000. None of the 48 states has been missed.

This small pamphlet outlines suggestions for a Major Disaster Emergency Plan for cities to prepare for any possible disaster, including war, which may occur. It deals with the preliminary organization, executive authority, emergency council, co-ordinator, headquarters, concentration areas, and 16 operating committees. For each committee, the personnel and organization are outlined, and the functions are delineated, both in preparing for and in preventing disaster, and in meeting it when it strikes. Included is a suggested model ordinance creating a "Major Disaster Emergency Council."

## Milk Utility

*Milk Distribution as a Public Utility.—By W. P. Mortenson, Ph.D., Associate Professor in the Department of Agricultural Economics, University of Wisconsin. The University of Chicago Press, Chicago, Ill.* 1940. *xviii* + 221 *pp.* $2.50 *from* THE AMERICAN CITY.

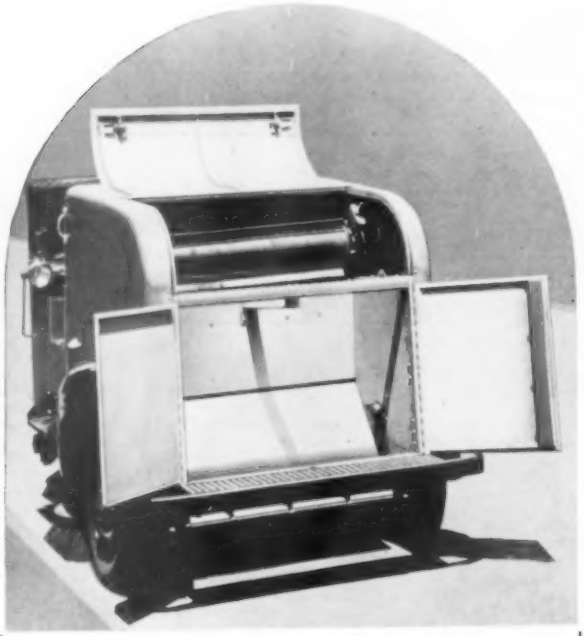
In order to cut the costs of milk distribution, which are now as great as those of production, it has been suggested that milk be made a public utility. What would be the advantages, disadvantages and limitations of such a procedure?

Presented in this book are findings of a four-year study of this subject at the College of Agriculture of the University of Wisconsin. It considers the historical background of milk control; costs and profits of distributing milk, and savings through unification; legal considerations; methods and difficulties of regulation; and economic effects of regulation.

## Training Firemen

*The Fire Alarm System.—By Frank Cushman, Consultant in Vocational Education, and H. A. Friede, Superintendent of the Fire Alarm Bureau, District of Columbia. Federal Security Agency, U. S. Office of Education, Washington, D. C. Apply to Supt. of Documents, Washington, D. C.* 1940. 77 *pp.* 15c.

Although training for general fire department personnel has been the subject of study and discussion, training for the men employed in fire alarm bureaus, the "nerve centers" of the fire department, has received little attention. Consideration of this subject is the object of this bulletin. The organization of a fire alarm bureau, and the jobs within it, are described and analyzed. Rules and information are given for the use of equipment.



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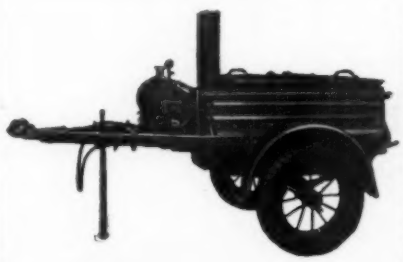

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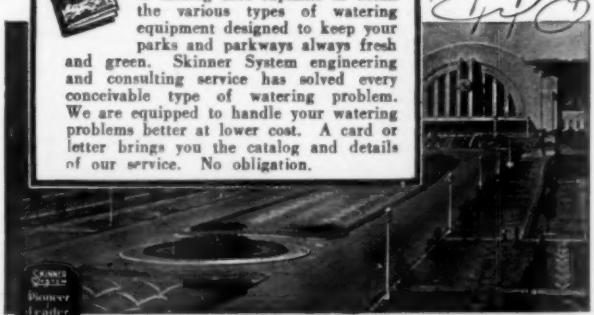

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## Resources for Defense

*Our National Resources.—National Resources Planning Board, Washington, D. C.* 1940.

Compiled from the Board's technical reports and other authoritative sources, this handbook contains an inventory of the human and physical resources of the United States, with a brief statement in each case of the major problems affecting their conservation and wise use. Facts and figures cover population, land, water, minerals, health, education, production, transportation, invention and other major resources.

## Trees and Wire Clearance

*Tree Clearance for Overhead Lines.—By George D. Blair, Forester, Consumer Power Co., Jackson, Mich. Electrical Publications, Inc., 360 N. Michigan Ave., Chicago, Ill.* 1940. 238 *pp.* $3.75.

The author states that "the object of the volume is to assemble in a clear and comprehensive form for the first time accurate information in dealing with all aspects and problems of wire clearance from trees." The text is based on the author's study of this problem over the last sixteen years in the official capacity of forester in charge of line clearance work for the Consumer Power Company in Jackson. A concise, well-written book that is easily understood, it covers a field that has too long been neglected. Thirteen chapter headings are as follows: Introduction; Overhead Line Construction; Economics of Line Clearance; Propert Tree Care; Tree Formed Heights and Growth Rate; Standard Clearance; Highway and Street Requirements; Laws and Regulations; Public Relations Trimming; Organization and Personnel; Equipment; and Safety Period.

KARL DRESSEL,
Assistant Professor of Forestry,
Michigan State College.

## New England Planning

*Proceedings of the New England Regional Planning Conference.—National Resources Planning Board, Region One, 2100 Federal Bldg., Boston, Mass.* 1940. 60 *pp.*

New England planning experts discuss in these proceedings of the May 10th meeting, a wide variety of planning problems—public relations, intra-state regional planning, zoning, industrial promotion, traffic problems, long-term budgeting, land use, forests, roadsides, shorefronts, and others.

## Local Government Study

*Municipal Government and Administration in Alabama.—By Weldon Cooper, Assistant Professor of Political Science, University of Alabama. Bureau of Public Administration, University of Alabama, University, Ala.* 1940. *ix* + 252 *pp.*

An over-all, comprehensive study of municipal government in Alabama, including detailed study of over 100 individual cities, is reported in this book under the headings: urban growth; legal status of the municipality; government and politics; administrative organization; finance—current operations and debt; civil service; public safety; public works; social services; intergovernmental relations. Trends are pointed out and recommendations made in the final chapter.

## County Personnel

*County Government Employees and Pay Rolls—April,* 1940: *Counties Having Populations over* 50,000; *and Counties Having Populations under* 50,000. *Department of Commerce, Bureau of the Census, Washington, D. C.* 1940. 9 + 18 *pp., respectively.*

These two bulletins are two of the series in the State and Local Government Quarterly Employment Survey inaugurated last January, which is designed to publish, for the first month of each quarter, data on employment and pay rolls of state and local governments. County figures for the period ending nearest April 30 of this year are presented in these two publications.

## Purchasing

*City Purchasing Methods—Some Details of Practice.—American Municipal Association, 1313 E. 60th St., Chicago, Ill.* 1940. 15 *pp.* 50c.

Along with the rapid growth of centralized purchasing in American cities, there has been a considerable amount written on its theory, but little on actual experience in cities. This report summarizes trends, and describes practice in cities where it has been adopted, including use of written specifications in municipal purchasing, standards and specifications, testing, improvements in recent years, and developments in cooperative purchasing. A final section suggests improvements in practices.

## Defense Preparations

*Defense Activities of Chambers of Commerce.—Commercial Organization Division, Chamber of Commerce of the United States, Washington, D. C.* 1940. 7 *pp.*

What defense activities did local chambers of commerce carry on before 1917? After 1917? What happened to their finances between 1914 and 1918? And finally, what activities have chambers of commerce recently undertaken? These questions, frequently asked in recent months of the National Chamber, are answered in this bulletin.

## Nuisances

*Manual of Ordinances and Requirements in the Interest of Air Pollution, Smoke Elimination, and Fuel Combustion. Smoke Prevention Association of America, Inc., 139 N. Clark St., Chicago, Ill.* 1940. 160 *pp.* 60c.

Besides model ordinances on smoke elimination, this manual contains the papers given before the annual convention of the Association, and other articles, covering the latest and best methods of reducing and eliminating air pollution by smoke, including discussions of causes and effects of smoke in the air, measurement of air pollution, fuel-burning methods and equipment, and city organization and legislation for smoke abatement. Answers to a questionnaire on the subject, sent to selected cities of all sizes, gives a picture of what is being done in ridding them of this menace to health, cleanliness and beauty.

## New York Markets

*The Wholesale Fruit and Vegetable Markets of New York City.—A Special Report by the Bureau of Agricultural Economics and the Agricultural Marketing Service, U. S. Dept. of Agriculture, Washington, D. C. Apply to Government Printing Office, Washington, D. C.* 1940. *vi* + 123 *pp.* 25c.

The year's study of New York's produce markets, on which this report is based, was made in the belief that there is a great need for attacking distribution and its costs as we have in the past attacked the problem of production. The report recommends the construction of a new, complete, modern wholesale fruit and vegetable market, which it calculates would save $8,500,000 a year in distribution costs. The present marketing system and its costs are described and critically analyzed in detail. Facilities, location, management and regulations, agent for building, operating expense and sources of revenue of a new market are considered.

## Industrial Promotion

*Industrial Survey of Chickasha, Okla.—Chamber of Commerce, Chickasha.* 1940. 70 *pp.* $2.00.

The thorough coverage of this report is indicated by the list of aspects considered: government, civic and social data, climate, utilities, agriculture, financial institutions, businesses and industries, builders and contractors, labor, transportation, cost of living, taxes, fees and other requirements for incorporation, restrictive legislation, industrial opportunities, market data and business figures. It is an example of the attractive job that can be done with mimeographing—clear print; well outlined; brief, to-the-point sections; in general, attractive and easily read.

## Other Reports Received

ANN ARBOR, MICH.—Annual Report, Department of Public Works, year ended June 30, 1939. 91 pp.

AUGUSTA, GA.—Year Book, 1939. 103 pp.

BAKERSFIELD, CALIF.—Report of a Traffic Survey in the City of Bakersfield. W.P.A. Project No. 10727. Engineering Department. 51 pp.

BOSTON, MASS.—The People of Boston—Vol 1, Distribution; Vol. 2, Trends, The City Planning Board. 243, 29 pp., respectively.

BRONXVILLE, N. Y.—Annual Report, Board of Trustees, year ended May 31, 1940. 28 pp.

CALIFORNIA.—California Planning, 1939. California State Planning Board, 441 Public Works Bldg., Sacramento. 64 pp.

CHEBOYGAN COUNTY.—Local Government in Cheboygan County. Bureau of Government, University of Michigan, Ann Arbor, Mich. 28 pp.

CHICAGO, ILL.—Annual Report, Board of Supervising Engineers, Chicago Traction, year ended Jan. 31, 1940. 122 pp.

CHICAGO, ILL.—Renting Cars for Police Use—The Evanston and Wilmette Plan. American Municipal Association, 1313 E. 60th St. 9 pp.

COLUMBUS, OHIO.—Annual Report, Chamber of Commerce, 1939-40. 9 pp.

—Annual Report, Division of Sanitary Engineering, 1939. Ohio Department of Health. 24 pp.

HARTFORD, CONN.—Fifth Annual Message of Mayor Thomas J. Spellacy of the Court of Common Council, Dec. 11, 1939. 9 pp.

—Manual, 1940, City of Hartford. 66 pp.

—Your Tax Dollar. 1 pp.

ILLINOIS.—The Illinois Emergency Relief Commission.—By Frank Z. Glick, Director of the School of Social Work, University of Nebraska. The University of Chicago Press, Chicago, Ill. 247 pp.

IRONTON, OHIO.—Annual Report, 1939. 29 pp.

LEXINGTON, KY.—Budget, 1940 and Audit Report, 1939. 95 pp.

MEMPHIS, TENN.—Report on the Traffic Planning Survey, 1939-40, Volumes I and II. Department of Public Safety. 100 and 87 pp., respectively.

MINNESOTA.—Year Book, 1940 Supplement. League of Minnesota Municipalities, 15 University Library, Minneapolis, Minn. 47 pp. $1.00.

MOOSE JAW, SASK.—Financial Statement, 1939. 66 pp.

NEW JERSEY.—Annual Report, New Jersey State Planning Board, 1939. Trenton, N. J. 38 pp.

NEW ROCHELLE, N. Y.—Auditor's Annual Report, 1939. 175 pp.

NEW YORK, N. Y.—The Crippled Child in New York City. Commission for Study of Crippled Children, 303 Ninth Ave. 218 pp.

NEWARK, N. J.—"Purchasing in Newark." Bureau of Municipal Research. 50 pp.

PHILADELPHIA, PA.—The Bonded Debt of the City of Philadelphia, May 31, 1940. Bureau of Municipal Research of Philadelphia. 35 pp.

RICHMOND, IND.—Annual Report, Controller, 1939. 16 pp.

SAN MATEO, CALIF.—Governmental Facts—Annual Report, 1938-39. 32 pp.

SEATTLE, WASH.—Annual Report, Department of Lighting, 1939. 24 pp.

SIOUX CITY, IOWA.—Annual Report, year ended Mar. 31, 1940. 19 pp.

STOUGHTON, MASS.—Annual Report, 1939. 237 pp.

"A Case History Study of Fatal Accidents."—By Earl Alligaier, Special Investigator, Highway Research Board and American Automobile Association, Pennsylvania Ave. at 17th St. Reprinted from Proceedings of the Nineteenth Annual Meeting of the Highway Research Board, Dec., 1939. 16 pp.

"Opinion Bulletin," June, 1940 (Report No. 63). National Institute of Municipal Law Officers, 730 Jackson Pl. 12 pp.

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# Conventions - - When and Where

***Meeting is annual convention unless otherwise designated***

AUGUST 18-20.—COUNCIL BLUFFS, IOWA.
*League of Iowa Municipalities.* Sec.-Treas., Frank G. Pierce, Marshalltown, Iowa.

AUGUST 18-24.—EVANSTON, ILL.
*National Institute for Commercial and Trade Organization Executives.* (Northwestern Univ.) Sec., C. R. Miles, 832 First Nat'l Bank Bldg., Chicago, Ill.

AUGUST 22-24.—LOGAN CITY, UTAH.
*State Municipal League of Utah.* (Eccles Hotel.) Sec., Tom McCoy, Public Safety Bldg., Salt Lake City, Utah.

AUGUST 27-30.—DETROIT, MICH.
*National Shade Tree Conference.* (Book-Cadillac Hotel.) Sec.-Treas., L. C. Chadwick, Ohio State Univ., Columbus, Ohio.

*SEPTEMBER 4-7.—PRINCETON, N. J.
*Governmental Research Association.* (Princeton Inn.) Sec.-Treas., Lent D. Upson, 5135 Cass Ave., Detroit, Mich.

SEPTEMBER 5-6.—PIERRE, S. DAK.
*League of South Dakota Municipalities.* (St. Charles Hotel.) Sec., A. E. Mead, Univ. of South Dakota, Vermilion, S. Dak.

*SEPTEMBER 8-11.—BUFFALO, N. Y.
*American Cemetery Association.* (Hotel Statler.) Exec. Sec., Roy Hatten, 1704 National Bank Bldg., Jackson, Mich.

SEPTEMBER 9-12.—SPRING LAKE, N. J.
*Illuminating Engineering Society.* (Essex and Sussex Hotel.) Gen. Sec., A. D. Cameron, 51 Madison Ave., New York.

SEPTEMBER 9-12.—MILWAUKEE, WIS.
*International Association of Chiefs of Police.* (Hotel Schroeder.) Exec. Vice-Pres., William P. Rutledge, 1313 E. 60th St., Chicago, Ill.

SEPTEMBER 9-12.—BALTIMORE, MD.
*National Association of Assessing Officers.* (Lord Baltimore Hotel.) Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago, Ill.

SEPTEMBER 9-12.—NEW YORK CITY.
*National Tax Association.* (Pennsylvania Hotel.) Sec., W. G. Query, South Carolina Tax Commission, Columbia, S. C.

SEPTEMBER 11-13.—ANN ARBOR, MICH.
*American Water Works Association—Michigan Section.* (Michigan Union.) Sec., M. N. Gerardy, Water Board Bldg., Detroit, Mich.

SEPTEMBER 11-13.—YORK, PA.
*League of Cities of the Third Class in Pennsylvania.* (Yorktowne Hotel.) Treas., Herman A. Early, City Hall, Harrisburg, Pa.

SEPTEMBER 12-13.—BISMARCK, N. DAK.
*League of North Dakota Municipalities.* Address: Exec. Sec., Myron H. Atkinson, City Auditor, Bismarck, N. Dak.

SEPTEMBER 15-19.—SEATTLE, WASH.
*American Association of State Highway Officials.* Sec.-Treas., W. C. Markham, 1220 National Press Bldg., Washington, D. C.

SEPTEMBER 16-17—DENVER, COLO.
*American Water Works Association—Rocky Mountain Section.* (Cosmopolitan Hotel.) Sec., B. V. Howe, State Office Bldg., Denver.

SEPTEMBER 16-19.—SAN DIEGO, CALIF.
*League of California Cities.* Sec., Richard Graves, 2121 Allston Way, Berkeley, Calif.

*SEPTEMBER 16-17.—GOODLAND, KANS.
*Kansas Association of Municipal Utilities.* Sec.-Treas., L. C. Angevine, McPherson, Kans.

SEPTEMBER 18-20.—NEW CASTLE, PA.
*American Water Works Association—Western Pennsylvania Section.* (Castleton Hotel.) Sec., E. P. Johnson, 418 Flannery Bldg., Pittsburgh, Pennsylvania.

*SEPTEMBER 18-20.—LAKE PLACID, N. Y.
*Municipal Electric Utilities Association of New York State.* (Lake Placid Club.) Sec., T. J. McKee, P. O. Box 686, Jamestown, N. Y.

SEPTEMBER 19-21.—NEW YORK CITY.
*United States Conference of Mayors.* Exec. Dir., Paul V. Betters, 730 Jackson Place, N. W., Washington, D. C.

SEPTEMBER 22, WEEK OF.—WHITE SULPHUR SPRINGS, W. VA.
*American Transit Association.* (The Greenbrier Hotel.) Gen. Sec., Guy C. Hecker, 292 Madison Ave., New York.

SEPTEMBER 22-24.—ROANOKE, VA.
*League of Virginia Municipalities.* (Hotel Roanoke.) Exec. Sec., Morton L. Wallerstein, 902 Travelers Bldg., Richmond, Va.

SEPTEMBER 23-26.—COLORADO SPRINGS, COLO.
*International City Managers' Association.* (Broadmoor Hotel.) Exec. Dir., Clarence E. Ridley, 1313 E. 60th St., Chicago, Ill.

*SEPTEMBER 23-25.—TOPEKA, KANS.
*League of Kansas Municipalities.* (City Auditorium.) Exec. Sec., John G. Stutz, Lawrence, Kans.

SEPTEMBER 23, WEEK OF.—FRANKFORT, KY.
*Kentucky Municipal League.* (New Capital Hotel.) Exec. Sec., Carl B. Wachs, Univ. of Kentucky, Lexington, Ky.

SEPTEMBER 24-27.—CLEVELAND, OHIO.
*American Institute of Park Executives and the American Park Society.* (Hotel Statler.) Exec. Sec., Will O. Doolittle, Box 422, Tulsa, Oklahoma.

*SEPTEMBER 24-26.—PEORIA, ILL.
*Illinois Association of Park Districts.* (Père Marquette Hotel.) Exec. Dir., A. D. McLarty, 500 E. Capitol Ave., Springfield, Ill.

SEPTEMBER 24-27.—NEW YORK CITY.
*New England Water Works Association.* (Hotel Commodore.) Sec., Frank J. Gifford, 613 Statler Bldg., Boston, Mass.

*SEPTEMBER 26-28.—WAHPETON, N. DAK.
*North Dakota Water and Sewage Works Conference.* (Wahpeton Hotel.) Sec.-Treas., L. K. Clark, Bureau of Sanitary Engineering, Bismarck, N. Dak.

SEPTEMBER 30-OCTOBER 2.—DETROIT, MICH.
*American Public Works Association.* (Book-Cadillac Hotel.) Asst. Dir., Norman Hebden, 1313 E. 60th St., Chicago, Ill.

SEPTEMBER 30-OCTOBER 4.—CLEVELAND, OHIO.
*National Recreation Association.* (Hotel Statler.) Sec., Howard S. Braucher, 315 Fourth Ave., New York.

OCTOBER 1-2.—COLUMBUS, OHIO.
*Ohio Conference on Sewage Treatment.* (Neil House.) Sec., B. M. McDill, Dept. of Health, Columbus, Ohio.

OCTOBER 2-4.—ROCK ISLAND, ILL.
*Illinois Municipal League.* (Fort Armstrong Hotel.) Exec. Dir., McLarty, 500 E. Capitol Ave., Springfield, Ill.

OCTOBER 3-5.—CHICAGO, ILL.
(Hotel Sherman.) First annual convention of the *Federation of Sewage Works Associations,* Sec.-Treas., H. E. Moses, 1522 N. Second St., Harrisburg, Pa., meeting in conjunction with the annual meeting of the *Central States Sewage Works Association,* Sec., W. H. Wisely, State Dept. of Public Health, Springfield, Ill.

OCTOBER 5-8.—CHICAGO, ILL.
*Institute of Traffic Engineers.* (Sherman Hotel.) Sec.-Treas., Harold F. Hammond, 60 John St., New York.

OCTOBER 7-11.—CHICAGO, ILL.
*National Safety Council.* (Stevens Hotel.) M'ng Dir., W. H. Cameron, 20 North Wacker Drive, Chicago, Ill.

OCTOBER 8-11.—DETROIT, MICH.
*American Public Health Association.* (Book-Cadillac Hotel.) Exec. Sec., Dr. Reginald M. Atwater, 50 W. 50th St., New York.

OCTOBER 8-10.—SCOTTSBLUFF, NEBR.
*League of Nebraska Municipalities.* (Hotel Lincoln.) Sec.-Treas., C. E. Beals, 204 Brownell Bldg., Lincoln, Nebr.

OCTOBER 8-9.—MADISON, WIS.
*Wisconsin Chiefs of Police Association.* (Hotel Loraine.) Sec., R. K. McCarty, Kaukauna, Wis.

OCTOBER 9-11.—JACKSON, MICH.
*Michigan Municipal League.* (Hotel Hayes.) Dir., Herbert A. Olson, 205 South State St., Ann Arbor, Mich.

OCTOBER 9-11.—MILWAUKEE, WIS.
*League of Wisconsin Municipalities.* Sec., F. MacMillin, 30 E. Johnson St., Madison, Wis.

OCTOBER 13-15.—CHARLOTTE, N. C.
*North Carolina League of Municipalities.* (Hotel Charlotte.) Exec. Sec., Patrick Healy, Jr., 704 Raleigh Bldg., Raleigh, N. C.

OCTOBER 14-17.—TULSA, OKLA.
*American Water Works Association—Southwest Section.* (Mayo Hotel.) Address: Sec., Lewis A. Quigley, Supt. of Water Works, Fort Worth, Texas.

OCTOBER 14-16.—MANITOWOC, WIS.
*American Water Works Association—Wisconsin Section.* (Hotel Manitowoc.) Sec., L. A. Smith, City Hall, Madison, Wis.

OCTOBER 14-17.—JACKSONVILLE, FLA.
*International Municipal Signal Association, Inc.* (Roosevelt Hotel.) Sec., Irvin Shulsinger, 8 E. 41st St., New York.

OCTOBER 14-18.—DETROIT, MICH.
*National Association of Public School Business Officials.* (Book-Cadillac Hotel.) Sec., H. W. Cramblet, Board of Education, Pittsburgh, Pa.

OCTOBER 15-17.—SPRINGFIELD, MASS.
*New England Sewage Works Association.* (Hotel Kimball.) Sec.-Treas., LeRoy W. Van Kleeck, State Office Bldg., Hartford, Conn.

*OCTOBER 16-18.—ATLANTIC CITY, N. J.
*Pennsylvania Water Works Association.* (Haddon Hall.) Sec., Dr. F. Herbert Snow, 327 Telegraph Bldg., Harrisburg, Pa.

OCTOBER 18-19.—ATLANTIC CITY, N. J.
*American Water Works Association—New Jersey Section. Fall meeting.* (Madison Hotel.) Sec.-Treas., C. B. Tygert, Box 178, Newark, N. J.

OCTOBER 20-23.—BOSTON, MASS.
*National Association of Commercial Organization Secretaries.* (Copley-Plaza Hotel.) Asst. Sec.-Treas., Mrs. Norma McKellops, 1615 H St., N. W., Washington, D. C.

OCTOBER 21-23.—LEXINGTON, KY.
*American Water Works Association—Kentucky-Tennessee Section.* (Lafayette Hotel.) Sec.-Treas., Howard D. Schmidt, 420 6th Ave., N., Nashville, Tenn.

OCTOBER 21.—BLUEFIELD, W. VA.
*League of West Virginia Municipalities.* Exec. Sec., Hume K. Nowlan, Hinton, W. Va.

OCTOBER 23-26.—LOS ANGELES, CALIF.
*American Water Works Association—California Section.* (Biltmore Hotel.) Sec., Burton S. Grant, Box 240, Arcade Annex, Los Angeles, Calif.

OCTOBER 24-26.—HUNTINGTON, W. VA.
*American Water Works Association—West Virginia Section.* Sec., John B. Harrington, State Dept. of Health, Charleston, W. Va.

OCTOBER 28-30.—RALEIGH, N. C.
*Joint meeting.* (Hotel Sir Walter.) *American Water Works Association—North Carolina Section.* Sec., R. S. Phillips, 206 Dacian Ave., Durham, N. C. *North Carolina Sewage Works Association,* Acting Sec., A. E. Hollette, Chapel Hill, N. C.

NOVEMBER 7-8.—WILMINGTON, DEL.
*American Water Works Association—Four States Section.* (Hotel DuPont.) Sec.-Treas., Carl A. Hechmer, Washington Suburban Sanitary Dist., Hyattsville, Md.

NOVEMBER 7-8.—ST. PAUL, MINN.
*American Water Works Association—Minnesota Section.* (St. Paul Hotel.) Sec.-Treas., Ronald M. Finch, Wallace & Tiernan Co., Inc., 414 Flour Exchange, Minneapolis, Minn.

NOVEMBER 7-8.—FORT WORTH, TEXAS.
*League of Texas Municipalities.* (Texas Hotel.) Exec. Sec., E. E. McAdams, 2225 Guadalupe St., Austin, Texas.

NOVEMBER 13-15.—OMAHA, NEBR.
*American Water Works Association—Missouri Valley Section.* (Hotel Fontenelle.) Sec., Earle L. Waterman, Univ. of Iowa, Iowa City.

DECEMBER 9, WEEK OF.—DALLAS, TEXAS.
*The Asphalt Institute.* M'ng Dir., J. E. Pennybacker, 801 Second Ave., New York.

*JANUARY 27-30, 1941.—NEW YORK CITY.
*American Road Builders' Association.* (Pennsylvania Hotel.) Engr.-Dir., Charles M. Upham, 952 Nat'l Press Bldg., Washington, D. C.

* First appearance of notice on this page.

At Long Last, We're Getting Rid of This—

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**PRESS AND PUBLIC ARE QUICK TO RECOGNIZE EFFICIENT**

# Municipal Management

The above cartoon appeared with an editorial in the Des Moines Tribune. One paragraph of the editorial said: "For years we have been yelling at the top of our lungs that there was absolutely no excuse whatever for local governments to function any less efficiently, or with any less modern methods, than the best run private business."

The Tribune's editor devoted space to this matter of municipal management because he knew it was of *real public interest.*

Today, more and more municipal officers are recognizing the power of modern methods in building and holding public good will by giving better, faster service.

Addressograph Methods simplify and co-ordinate important municipal office routine. They eliminate errors, omissions, misspelling and illegibility on bills, receipts and other forms. They end waste motion which causes irritating delays. They remove the hazards of errors that cause inconvenience or defeat the collection of revenue.

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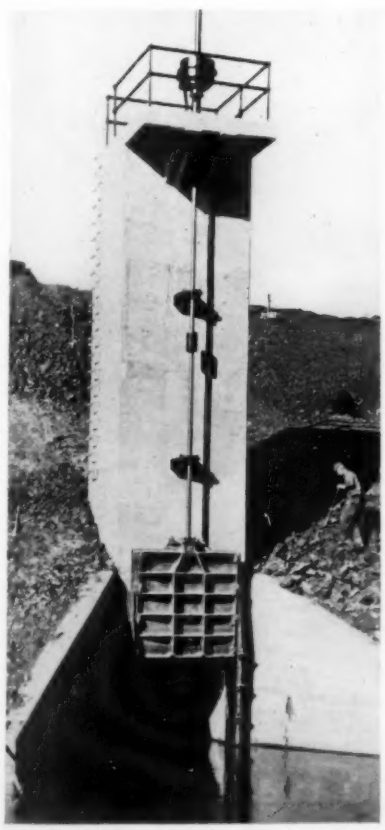
# News and Illustrations

**Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings**

## *Cast Iron Sluice-Gates with Bronze Mountings*

The Ludlow sluice-gates, manufactured by The Ludlow Valve Mfg. Co., Inc., Troy, N. Y., are fully bronze-mounted and may be secured in various styles and types. Gate rings, frame rings and wedges are made of long-wearing, corrosion-resisting bronze generously proportioned to insure years of efficient service under the most severe operating conditions. The threaded stem on all self-contained sluice-gates is bronze.

Ludlow sluice-gates are furnished with square gate, square frame, square gate ring, and square frame ring, or with square gate, square frame, round gate ring and round frame ring, and can be furnished with extension stems, arranged for operation by manual or motor floor stands, or equipped with cylinders for hydraulic operation. Floor stands can be furnished with an indicator to show the position of the gate, and rising stem types with pipe stem covers. Bulletin No. S-39, recently issued by the manufacturer, illustrates and describes the various types of Ludlow sluice-gates.



*Ludlow Sluice-Gate with Extension Stem, Wall Guides and Ball-Bearing Floor Stand*

## *New Model M. S. A. Co. Gas Indicator*

Announcement has been made by the Mine Safety Appliances Co., Braddock, Thomas and Meade Streets, Pittsburgh, Pa., of a new model Explosimeter, an improved type of combustible gas indicator. The new model, No. 2, features a single filament, single knob control, and an on-off signal bar on the single control knob, which is raised when the current is turned on and drops flush with the knob when the current is turned off, thus preventing the instrument from being left with the current on. Immediate response to combustible gas concentrations is provided by the easy-reading meter with positive reading on second squeeze of the bulb. The flow system is cast integral with the case, and a built-in filter chamber is provided to trap dust and moisture. This instrument uses the same electrical circuit used in the Model 1 Explosimeter.

*M.S.A. Gas Indicator*

The Explosimeter Model No. 2 is powered by standard flashlight batteries contained in a separate compartment from the working parts. Bulletin DN-4, describing the Model No. 2 Explosimeter, may be secured from the manufacturer.

## *Electric Etcher Marks Small Tools Indelibly*

A new illustrated folder issued by the Ideal Commutator Dresser Co., 1260 Park Avenue, Sycamore, Ill., describes in detail the Ideal electric marker, which etches any desired inscription on glass, steel, iron, bronze, hard rubber, plastics, porcelain, marble, tile and ceramics. The improved model of this marker has a more powerful cutting stroke, simplified stroke adjustment, an improved hand grip, and is equipped with either a special alloy or diamond cutting point. It is particularly adaptable for marking small tools and laboratory equipment in such a manner that theft or accidental removal is reduced to a minimum. The Ideal Marker is a small electric hammer making 7,200 tiny cutting strokes per minute. It comes complete with 6 feet of cord, a plug and an on-off switch for 110 volts, 60-cycle alternating current.

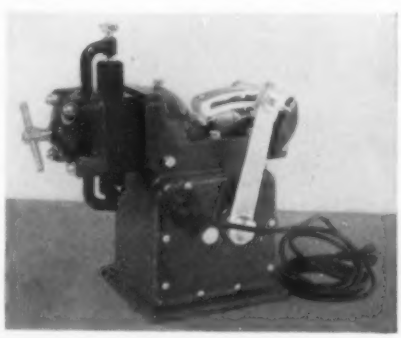
## *New Hypochlorite Pump for Small Water Works*

For feeding a solution of hypochlorite to a small water supply, Wallace & Tiernan Co., Inc., Newark, N. J., has developed the W&T Hypochlorinator, which is a completely self-contained pump requiring only one square foot of floor space for the pump itself, and simple pipe connections from the solution crock to the pump and to the pipe line through which the water to be sterilized is flowing.

This hypochlorinator is made in three types: an electrically operated unit adaptable to small water supplies where electricity is available and it may be arranged to operate either manually or to stop and start automatically with the pumping unit; the manually operated unit which is operated by water power, requiring no external source of power, and which is particularly adaptable for emergency work, standby or duplicate installation or for regular service where no electric current is available; the automatic water-operated unit for small gravity water supplies or other small systems which have wide variations of flow.

The average cost of a hypochlorite solution is less than 1 cent per 1,000 gallons of water treated, and the electrically operated unit consumes less than 40 watts. It costs, on the average, no more than 5 cents a day to operate. The pump is operated on the principle of the balanced diaphragm, which permits uniform pressure against the diaphragm, resulting in longer life and improved accuracy. The small 40-watt motor will operate the unit against pressures up to 125 pounds per square inch.

Not only is this hypochlorinator useful in sterilizing a water supply with a hypochlorite solution, but it can be also used to feed solutions of alum, soda ash, iron salt and other coagulants; copper sulphate; Calgon, sodium silicate and other corrosion inhibitors, equally well.



*Electrically Operated W&T Hypochlorinator*

● You'll be excited too, Al, when you realize all the things this new Remington Rand Printing Calculator will do. Stop and think: every division and multiplication problem in our office—yes, and probably in yours too—is the direct result of some previous addition or subtraction work. What a marvelous thing it is that now we can do the whole job on one complete machine at each desk!

*Sure, Frank—we've got a lot of calculating work at our place. What's the matter with ordinary calculating machines?*

Two things, my boy—you need highly trained operators to run 'em, and you have to do the work twice to prove accuracy. But the Printing Calculator is a simple 10-key machine. It divides automatically and multiplies electrically. It prints every factor of every problem. The tape is a permanent record, for checking or filing. What's more, we also have the service of a listing-adding machine—double facilities, but only one investment . . . We traded in all our calculating and adding machines on new Printing Calculators. You'll never regret it if you do the same thing.

*You've sold me 100%, Frank . . . but say, you're in the wrong business. With your enthusiasm, you ought to be on Remington Rand's payroll!*

● If *your* figure-work is like Frank's and Al's, you'll profit tremendously by using the Printing Calculator, with its ability not only to calculate but also to list, add and subtract. Already this amazing invention has simplified the office figuring habits of thousands of businesses. See it demonstrated in your own office, on your own work. Phone your nearest Remington Rand office today, or write to Remington Rand Inc., Buffalo, N. Y. In Canada, address Remington Rand Ltd., Toronto.

# The Remington Rand Printing Calculator

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**WE** like it because it's an all-purpose machine at little more than adding machine cost.

**WE**'ve put one in every branch, replacing two machines . . . releasing capital once frozen.

**WE** use it for all original work, eliminating the "re-run for proof" time formerly needed.

## Eastern Office for Pomona Pump Co.

Pomona Pump Co., Pomona, Calif., has announced the establishment of an executive eastern office at 120 Broadway, New York City, with W. D. Turnbull as General Sales Manager in charge of the office. Prior to joining the Pomona organization Mr. Turnbull was for 17 years associated with the Westinghouse Electric and Mfg. Co., in Pittsburgh.

Associated with Mr. Turnbull in the New York office will be Svend A. Canariis, water-works engineer, G. M. Lambert, Eastern District Manager, Dan M. Wallace, in charge of national accounts, and George H. Shetlin, in charge of export sales.

Direct sales in the New York area are under the direction of Quimby-Ryan Engineering Sales Co., Inc., 1 East 42nd Street, as distributor.

The election of C. L. Barrett, formerly General Sales Manager of Pomona Pump Co., to the office of Vice-President in Charge of Sales has also been announced.

## Flanigan Succeeds Quinn of Chain Belt

The Chain Belt Co., of Milwaukee, Wis., has announced the appointment of G. B. Flanigan as New York District Manager to succeed W. H. Quinn, who died on May 5, 1940, after 17 years' association with the company. Mr. Flanigan entered the employ of Chain Belt Co. immediately after graduation from the Sheffield Scientific School of Yale University in 1925. After several years in the manufacturing and sales departments in Milwaukee he became a member of the New York District sales force in 1928, and in 1937 was appointed Chicago District Sales Manager.

R. T. Sterndorf, who has been with Chain Belt since his graduation from Purdue University in 1924, was appointed District Manager of the Chicago Office.

## Complete Method of Sludge Disposal

Much of the equipment used today in sewage treatment was developed for the mining and metallurgical industries. The first Nichols Herreshoff furnace was installed more than 50 years ago at the Nichols Chemical Co. plant in New York City to overcome damage to vegetation by sulphur gases from roasting ores. During the succeeding years many improvements have been made to meet changing conditions and to extend the application of the furnace to other fields, including incineration of sewage solids and disposal of industrial wastes.

The first successful sewage-solids incinerator was installed by the Nichols Engineering & Research Corporation, 60 Wall Tower, New York, during the latter part of 1934 at Dearborn, Mich. This incinerator was a 16-foot x 9-inch diameter 6-hearth mechanically rabbled Nichols Herreshoff, and handled the entire output of the Dearborn municipal sewage plant.

Nichols Herreshoff incinerators have since been installed in many plants which had been using other means of sludge handling, such as lagooning of liquid sludge, barging of liquid sludge to sea, pumping liquid sludge into large bodies of water, drying beds, both opened and enclosed, and trucking filter cake from vacuum filters to dumps.

Compact design, rugged construction and simplicity of operation are characteristics of the Nicholas Herreshoff incinerator. The sewage sludge is fed in at the top, dried and incinerated, and the ash is automatically discharged at the bottom. All sewage-plant wastes are disposed of in one operation. Multiple-hearth construction permits flexibility in operation and wide capacity range. High heat-duty alloys and refractories are selected for long life; the central shaft and rabble arms are air cooled; rabble arms and teeth are quickly replaceable from outside the incinerator without cooling; all bearings are located outside the incinerator; and controlled combustion insures freedom from smoke and odor nuisances.

A copy of Bulletin No. 210 recently issued by The Nichols Engineering & Research Corporation may be secured free on request by municipal officials.

## Herring Granted Leave of Absence

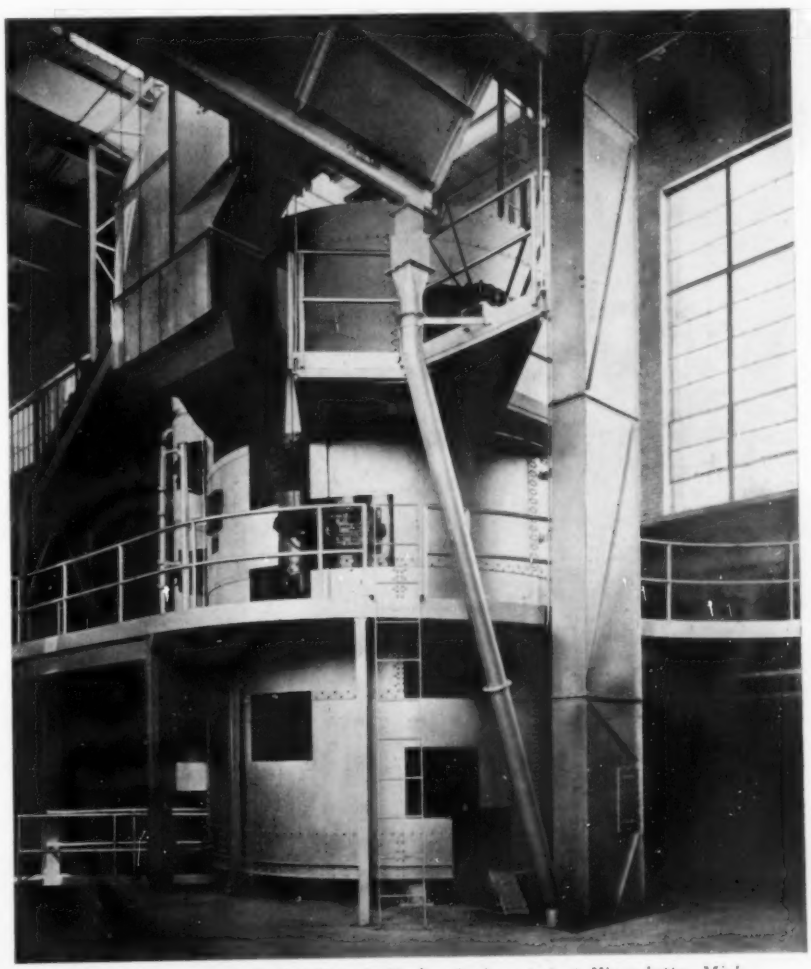
Frank W. Herring, Executive Director of the American Public Works Association, has been granted a leave of absence from his duties beginning June 15, 1940, and extending to January 1, 1941, in order that he might accept the post of Assistant Director of the National Resources Planning Board in Washington.

Norman Hebden, former Assistant Director, has been appointed Acting Executive Director of the Association during Mr. Herring's absence.

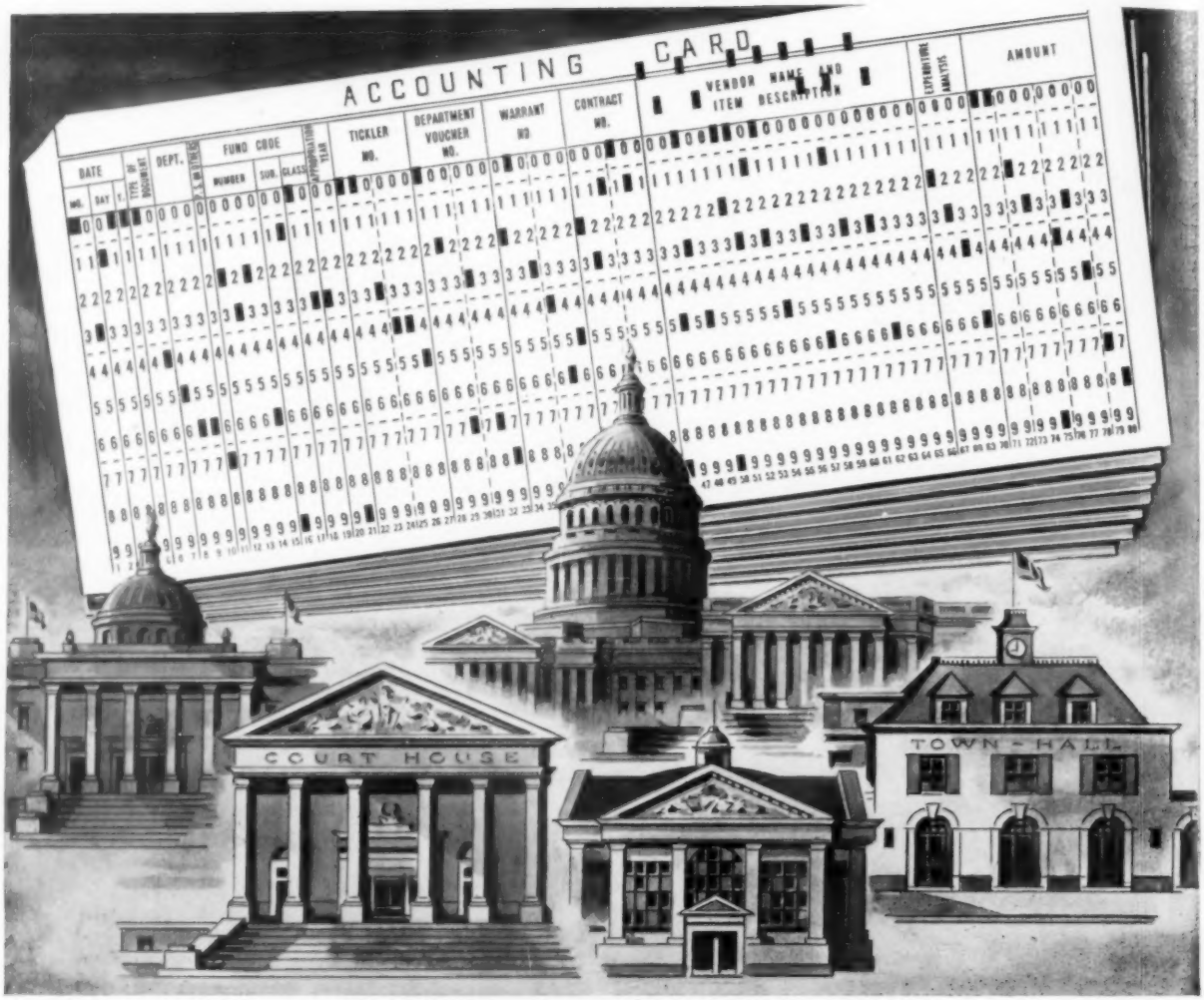
## Water Meters and Meter Settings

The Ford Meter Box Co., Wabash, Ind., in its new catalog No. 40 not only illustrates and describes various Ford meters, valves, couplings, etc., but gives much valuable information on proper water-meter installations, and care of water meters. One section is devoted to basement meter settings and another tells how to make good pit meter settings.

This booklet also contains discusions on the prevention of freezing of pit meters, and improving old meter settings, and a section devoted to meter-testing.



*The Nichols Herreshoff 8-Hearth Sludge Incinerator at Wyandotte, Mich.*




# HALF A CENTURY

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*Semi-Floating Guard with Rail Element Attached to Post*

## All-Steel Roadguard Has Safety Features

The Armorsteel Roadguard is so designed that it functions as a complete unit. On impact, the main deflecting plate flexes sideways until all the leeway is taken up. The spacing pieces that hold the deflecting plates to the posts will next flex, vertically or sideways, after transmitting the load to adjacent posts, thus eliminating shock and rebound. The posts will next give in the ground if the impact is sufficiently severe. And, in cases of severest impacts, the parts will have a stretching ability to stop a vehicle from going through.

The appearance of Armorsteel Roadguards, made by The Armorsteel Roadguard, Inc., 2362 Euclid Avenue, Clevelyand, Ohio, is so substantial that a nervous driver will not react to the mental hazard of serious danger, according to the manufacturer.

These Armorsteel Roadguards are made entirely from structural steel except for temperature spring equalizers, and combine ductility, elasticity and the greatest possible strength.

Armorsteel guards are furnished in four types; non-floating, a guard in which the rail element is attached to each post through its bracket without sliding adjustment; semi-floating, guards in which the rail elements are attached to each post through its bracket with limited sliding adjustment; full-floating, guards in which the rail element is free to move past its bracket at each post; and the beam type, with standard minimum tolerance for rolling.

## Holmes, Sales Manager of Eddy Valve Co., Dies

Harry A. Holmes, Sales Manager, Eddy Valve Co., Waterford, N. Y., died at his home in Jackson Heights, N. Y., on June 20. Mr. Holmes entered the employ of the Eddy Valve Co. 38 years ago and 10 years ago was made New York Sales Manager of that firm. Prior to coming to New York City Mr. Holmes made his home in Waterford, N. Y., where he was active in the political and community life of the city.

## Chicago to Have New Steel Water Mains

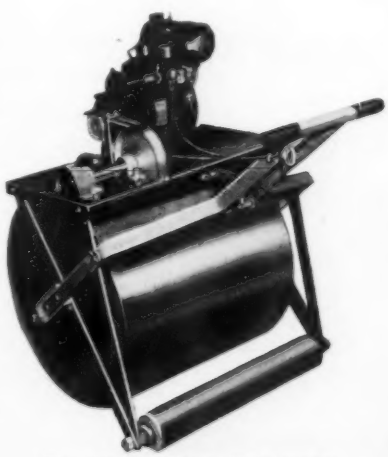
Work on the new State Street and Dearborn Street subways in Chicago is making it necessary to construct new water mains in that city. This work embraces a number of small-length lines which intersect the subway within an area bounded roughly by the Chicago River on the south, Division Street on the north, Wabash Avenue on the east, and Dearborn Street on the west. The approximate total footage is 13,809 feet.

Steel pipe, furnished by the Chicago Bridge & Iron Co., Chicago, Ill., Taylor Forge & Pipe Works, Chicago, Ill., and the Youngstown Sheet & Tube Co., Youngstown, Ohio, is being used. A total of 1,214 Dresser couplings will be required to join the pipe. The Barrett Co., New York City, Reilly Tar & Chemical Co., Indianapolis, Ind., and Steel Protection & Chemical Co., Inc., Mooresville, Ind., are furnishing the coatings and linings for the pipe and joints.

The work is being done by the city of Chicago, Department of Public Works.

## New Small Single Roll Road Maintenance Unit

The Gisco Rollawn, manufactured by the General Iron & Steel Corporation, 270 Lafayette, St., New York, is a new single-roll maintenance roller, which weighs 260 pounds empty and 625 pounds when filled with water. It is designed for general light rolling work in a wide variety of fields, including lawns, tennis courts, golf courses, sidewalks and street-maintenance work. The roll is 24 inches in diameter and 24 inches wide, and is driven by a 4-cylinder, 1-hp Briggs & Stratton gas engine at variable speeds up to 2 miles per hour. The drum roller is made of heavy steel plate electrically welded with rounded edges to prevent cutting. The rear support roller which holds up the handle and keeps the engine upright is 4 inches in diameter and ball-bearing. The shipping weight of the Gisco Rollawn averages 300 pounds.



*The Gisco Rollawn Maintenance Unit*

STREET NAME SIGNS
●
SIGNS WITH REFLECTING BUTTONS
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WRITE FOR LATEST SIGN CATALOG
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Western CATAPHOTE CORPORATION
958 WALL STREET
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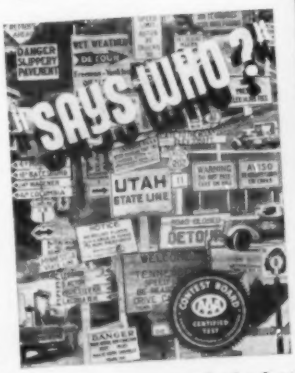
RUSTA-RESTOR TRADE MARK REGISTERED
PATS PEND.
Stops rust in steel water tanks and filter beds
(CATHODIC PROTECTION)
Write for circular
RUSTA RESTOR CORP.
1450 W. State Street
FREMONT OHIO

# NATIONAL 1ST LEADER . . . by popular vote

# CHEVROLET TRUCKS . . for 1940

## Get your copy of Certified Facts about CHEVROLET'S PROVED ECONOMY




Ask your Chevrolet dealer, or write to us, for your copy of "Says Who?"—a 16-page book that gives the facts about truck operating costs, facts certified by the Contest Board of the A.A.A. We printed this booklet for *you*—so that you might have authoritative evidence as proof of what Chevrolet trucks can do, and what they cost to operate and maintain.

For the 6th time in the last 8 years, the nation's truck buyers, by their orders, have awarded to Chevrolet first place in truck sales.

Official 1940 registrations tell the story. The latest figures (for the first five months) show 84,167 Chevrolet truck registrations. That is 15,196 more than for the make in second position, and 53,163 more than for the third place make. Incidentally, it's a gain of 10,042 units for Chevrolet over the corresponding figures for 1939.

Chevrolet is the leader in sales because truck buyers are *wise* buyers—because they chose the truck that leads in earning power, in reliability, in value.

CHEVROLET MOTOR DIVISION
*General Motors Sales Corporation*
DETROIT, MICHIGAN

*The New Thermionic Continuous pH Flow Cell with the Cover Removed*

## *Continuous pH Recorder for Water Purification*

A continuous pH recorder which is of particular value in water-purification plants for the control of dosing with milk of lime or for recarbonation has been developed by the Cambridge Instrument Co., Inc., 3732 Grand Central Terminal, New York, in its thermionic pH recorder, which five years ago was a laboratory unit but today is a practical machine. It provides a continuous record of hydrogen ion concentration with laboratory accuracy, yet it is a rugged instrument designed to give continuous, dependable operation under practical operating conditions.

It consists of two units, an electrode assembly and the combined thermionic potentiometer recorder. If desired, the electrode assembly can be located several hundred feet from the recording unit. The potentiometer operates on any alternating current source from 110 to 125 volts, eliminating the uncertainty of battery operation. The entire unit is in a dust-tight and vapor-tight case providing complete protection. Additional security from humidity is provided by hermetically sealing the electrometer housing with gaskets and by using a chamber filled with silica gel or other drying agent.

The chart on which the record is made is 10 inches wide, providing 1/4-inch for each 0.10 pH unit. The standard speed of the chart is 1 inch per hour, but other speeds are available. Operating at normal speed, the chart need be replaced only once every two months. A standard range of any eight consecutive pH units are provided on the chart.

The electrode system consists of a rugged membrane of electrode glass. Connection to the membrane is made by means of a buffer solution and a permanent type of calomel electrode. Junction to the test sample which flows continuously through the unit is made by a saturated potassium chloride solution through a ground-glass plug. The continuous flow type chamber is so designed that no clogging occurs due to solid particles carried in the sample solution.

These units are also used for the control of feed water for power stations or for flue gas scrubber liquids and for the control of bactericidal conditions and the neutralization of industrial wastes in sewage treatment.

Complete information will be found in Bulletin List 910-T.

## *Protection for Water Supply Lines*

In addition to meeting the A.W.W.A. standard specifications, Barrett enamels provide linings in steel water supply and distribution lines with exceptional bond to metal, uniformity and with a mirror-like finish. These enamels, manufactured from specially processed coal-tar pitch, are highly resistant to water absorption and to bacteria in active water which causes tuberculation.

In recognition of the acceptance by engineers of Barrett enamels, The Barrett Co., 40 Rector Street, New York, Protective Coating Division, has recently issued a new booklet on the use of Barrett water-works primers and enamels on water-works projects, in which is included a copy of A.W.W.A. Standard Specifications 7A.5 and 7A.6, which may be secured upon request from The Barrett Co.


**PEERLESS**

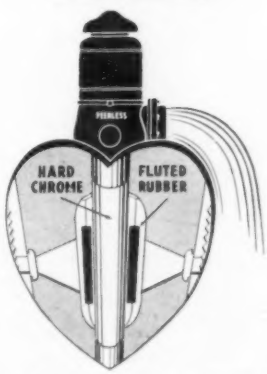
PRESENTS

CLOSEST APPROACH TO

**INDESTRUCTIBLE**

WATER-LUBRICATED

**BEARINGS**




Heart of pump improves with use. Chromium-armored. Resiliently-encased. 27 times more durable. Request Bulletin.

**PEERLESS PUMPS**

PEERLESS PUMP DIVISION

*Food Machinery Corporation*

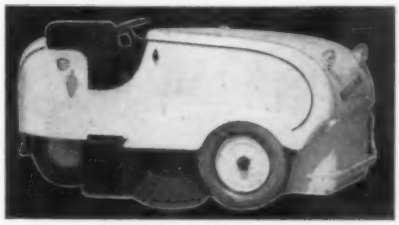
Factories: Los Angeles, San Jose, Fresno, Calif., Massillon, Ohio



**South Bend**

GUTTER-SNIPE

PICKUP STREET SWEEPERS



SWEEPS 5' 6" WIDE

FULL HYDRAULIC CONTROLS

REAR WHEEL STEER

●

**South Bend**

STREET FLUSHERS

SIZES 600 TO 3000 GALLONS CAPACITY FOR TRUCK OR TRAILER MOUNTING STREAMLINE AND CONVENTIONAL CLEANS FULL WIDTH STREET.

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BITUMINOUS MATERIAL DISTRIBUTORS

SIZES 500 TO 2100 GALLONS CAPACITY FOR TRUCK OR TRAILER MOUNTING DISTRIBUTES ANY MATERIAL AT ANY TEMPERATURE, IN ANY QUANTITY NO-DRIP OR CIRCULATING SPRAY BARS.

*Write for Catalogs*

**MUNICIPAL SUPPLY COMPANY**

SOUTH BEND, INDIANA

*Manufacturers of*

**Street Cleaning and Road Building Equipment**

SAN FRANCISCO USES HARLEY-DAVIDSONS

*Exclusively!*

Hats off to the way San Francisco does things! The magnificent Golden Gate Exposition—the world-wonder Golden Gate Bridge — and the awe-inspiring 8-mile Bay Bridge!

And when San Francisco equips her police with motorcycles she demands the finest, most dependable machines that money can buy — and chooses Harley-Davidsons 100%!

Like San Francisco, more than 3500 departments the country over, have purchased Harley-Davidsons. Their superior power and stamina—ease of operation—low operating and maintenance costs are the result of long experience, unusual engineering skill, and quality workmanship. Equip your squads for top efficiency — specify Harley-Davidsons. Phone your Harley-Davidson dealer today to bring over a late model for your inspection.

HARLEY-DAVIDSON MOTOR COMPANY • *Milwaukee, Wisconsin*

HARLEY-DAVIDSON

THE POLICE MOTORCYCLE

*The New M-B Automatic Traffic Line Marker*

## New Traffic Line Marking Unit

A new traffic line marker which automatically applies single, double or triple center lines, or road lanes, solid or intermittent, in one-, two-, or three-color combinations, has recently been announced by the Meili-Blumberg Corporation, New Holstein, Wis. This new unit is mounted on a 3-wheeled chassis which may be attached to the rear axle or running board of a towing truck, or can be pushed ahead of the truck so as to provide an unobstructed view for the operator. An adjustable, detachable guide is furnished. Should the towing vehicle deviate from its course, the marking-unit operator can steer the unit to any prescribed course or shift it from side to side.

The operating mechanism is controlled by three centrally located levers. The length of intermittent marks may be predetermined and the machine adjusted to produce the length of line, either automatically or by manual control. Clean-cut lines are assured by the use of internal atomizing type spray guns and floating side shields. Provision is made to clean the road surface ahead of the spray guns by blowing away the dust before the paint is applied. Either paint or hot asphalt may be used.

Complete information and specifications on the new M-B marker may be secured from the manufacturer by readers of this magazine.

## New Large-Capacity Pumps by Peerless

The New Hydro-Foil propeller-type pumps for delivering large capacities of water are made by Peerless Pump Co., 321 West Avenue 26, Los Angeles, Calif. This new type of pump is a modern adaptation of the old propeller type pump and produces capacities from 600 to 100,000 gpm.

The unique features of construction, the principle of which is the incorporation of heavy, blunt, streamlined blades in the suction piece, propeller and bowl diffuser, eliminate the water eddies attendant on the ordinary propeller type. This type of pump is used where large quantities of water are to be produced with a low head and for drainage and unwatering. The major applications include canals, sumps, marshes and other unwatering jobs with lifts ranging from 4 to 60 feet. The drainage of underpasses, coffer-dams, open pits and the handling of large volumes in process plants are uses of this new type of pump, which can be set vertically or slantwise.

The new Hydro-Foil pump is described in detail in a bulletin recently issued by the Peerless Pump Co., and may be secured free on request.

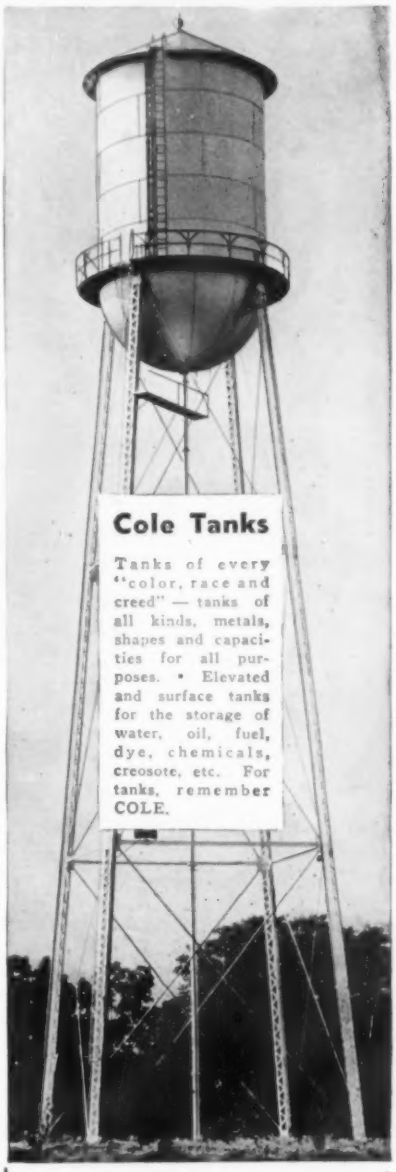
## New Flow Meter Announced

A new flow meter for steam, water, air or gas has been announced by the American District Steam Co., pioneer manufacturers of flow meters for more than 25 years. Known as the ADSCO flow meter, it operates in conjunction with an orifice plate in the pipe line, and records the flow on an evenly divided chart by means of a frictionless mechanism. All charts and counters show the flow directly, and no factor has to be applied to the readings. Under the most severe operating conditions, the meter maintains its accuracy. The chart and integrator mechanism is driven by a synchronous A. C. clock motor by a capacity in excess of actual drive requirements.

The moving parts within the meter comprise a magnet attached to a mercury container suspended from a spring. A fixed internally shaped bell surrounds the lower portion of the magnet and forms a seal with the mercury in the container beneath it. The movement of the container is directly proportional to the flow through the orifice, and follower magnets in the external recording mechanism transmit the movement to a gravity-held pen arm which records on the chart. This ADSCO flow meter is furnished in four types: recording only; recording and integrating; indicating and recording; and indicating, recording and integrating. Complete details are illustrated and described in Bulletin No. 35-83 which may be secured from the American District Steam Co., North Tonawanda, N. Y.

*The New ADSCO Flow Meter*

**Tank Builders For Over 80 Years!**



**Cole Tanks**

Tanks of every "color, race and creed" — tanks of all kinds, metals, shapes and capacities for all purposes. • Elevated and surface tanks for the storage of water, oil, fuel, dye, chemicals, creosote, etc. For tanks, remember COLE.

*Other Cole Steel Products*

Towers, standpipes, vats, heavy pressure vessels, flumes, bins, kettles, smokestacks, boilers, castings, and all kinds of fabricated plated work—welded and riveted. Made to your specifications, or from our designs submitted by our own Engineering Department.

*Write for "Tank Talk"—No. 15A*

**R.D.COLE MFG.CO.**

Established in 1854

NEWNAN···GEORGIA

# Rough and Ready — and a swell looker!

● THERE'S a brutish beauty about a unit like the Ford in this picture — a feeling of massiveness and strength held within clean lines. It takes your eye.

But it gives you a powerful respect for its downright ruggedness too. It tells you again what you already know — that you can count on a Ford to *stand up* on daily jobs that might take the heart right out of a unit less solidly built, less skilfully engineered.

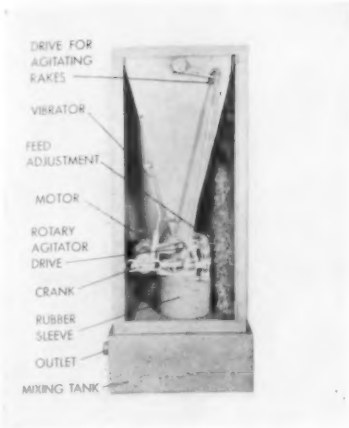
And there's that important word, economy. Ford Trucks can save money for you in more ways than one. They're easy on oil and gas. They don't cost much to begin with and they bring a high consideration from any Ford dealer when it's time to trade them in. They last a long while.

If you haven't operated a Ford for the past few years, maybe you don't know what you're missing. These '40s are walloping big values — the best we've ever built. Ask your Ford dealer about an "on-the-job" test — a free demonstration of performance with a full load, over your routes, with your own man at the wheel.

## FORD TRUCKS and COMMERCIAL CARS

*Ford Motor Company, builders of Ford V-8 and Mercury Cars, Ford Trucks, Commercial Cars, Station Wagons and Transit Buses*

Visit the new Ford Expositions at the two Fairs, New York and San Francisco, 1940.




*View of Oscillating Type Dry Chemical Feeder with Side Panel Removed*

## Oscillating-Type Dry Chemical Feeder

A new oscillating-type dry chemical feeder has recently been announced by The Permutit Co., 330 West 42d Street, New York. This new type dry chemical feeder is driven by a totally enclosed electric motor with gear head. The length of stroke of the monel metal feed plate determines the rate of feed, provision being made to vary the stroke by means of a feed adjustment. This adjustment device stands still while the feed is in operation so that the rate can be changed without shutting down the feeder.

When the flow of water is constant, the rate of feeding chemicals is likewise constant, once the dosage has been determined. When the rate of flow of water is subject to variations in demand, proportional feeding is necessary. Provision has been made to agitate the chemicals in the hopper and thus prevent "arching."

The entire feeder is enclosed in a cabinet of welded steel with welded steel frame. All fittings are of the flush type, and a large door permits convenient access to the rate adjustment and feed spout.

## Electric Pipe Finder Shows Depth and Line

Water departments are still troubled with locating old mains which are suspected of leakage or must be removed for replacement with larger mains, or which have never been accurately located so that they could be placed on sectional maps. To make this work easier, the Fisher M-Scope is manufactured by the Fisher Research Laboratories, Palo Alto, Calif., and is distributed east of the Mississippi, by Joseph G. Pollard Co., Inc., 142 Ashland Place, Brooklyn, N. Y.

The M-Scope consists of a transmitter, a receiver, earphones, spirit level, and the necessary wires. For use in locating a buried pipe line, the receiver switch is turned on and the rheostat adjusted so that the volt meter reads 2 volts and the visual indicator reads approximately zero. This shows that the batteries are in perfect condition. The transmitter switch is turned on and the volt meter then reads approximately 1.5. After the receiver and transmitter are both turned on and the instruments are within 2 or 3 feet of each other, the visual indicator on the receiver reads approximately 0.80. This shows that the instruments are in good working order.

Then the instruments are separated by at least 30 feet in order to make full use of the electric field set up by the transmitter. When locating pipes extremely deep, that is, 10 to 12 feet or more in depth, the distance between the instruments must be extended to 40 or 50 feet. When the normal 30-foot distance between the instruments is maintained under normal conditions, the transmitter is operated on low power, and the volume control on the receiver is set so as to get a definite indication. If the pipes are more than 6 to 8 feet deep, it may be necessary to operate both instruments on high power.

When necessary to increase the 30-foot distance between the instruments, the power control and the volume control are both adjusted to suit the operator. The tone control is adjusted to the most efficient point for the operator using it, so as to avoid any interference from outside sources.

When advancing with the instruments in surveying to locate a straight pipe, the transmitter and receiver are kept parallel at all times. The pipe line is indicated by a reading of the visual indicator and an increase in tone volume in the earphones when the receiver or transmitter is over the pipe or conductor. These two indications occur simultaneously.

Helpful illustrations showing how to locate a pipe line as described above, how to locate the center of a buried pipe, how to measure depth, to locate dead ends and stubs, and to locate unknown metallic hazards in the path of trench excavators, as well as to locate any enlargement near the surface such as a buried valve, are all described in Bulletin 6 which may be secured from the Fisher Research Laboratories, Palo Alto, Calif., or through the eastern distributors, Joseph G. Pollard Co., Inc., 142 Ashland Place, Brooklyn, N. Y.

## Mutchler of Sterling Engine Co. Dies

Maurice Eckley Mutchler, General Sales Manager of the Sterling Engine Co., Buffalo, N. Y., since 1920, died suddenly at his home in Kenmore, N. Y., on July 22.

Mr. Mutchler had been associated with the Sterling organization since 1913 and was a well-known figure in his field. He joined the U. S. Navy during the World War, serving as a Chief Petty Officer. In recognition of his outstanding achievements in promoting the marine industry, he was recently awarded the annual medal of the Regatta Circuit Riders.


Put the "GO" Sign on Brooks

LOAD LUGGER
(Reg. Trade-Mark)

When requisitioning new equipment, be sure to put the LOAD LUGGER on the preferred list. It is worth a whole fleet of trucks for handling materials, as the detachable buckets can be hauled and dumped in turn while others are loading.

*It's great for WPA jobs*

For greatest economy, use the LOAD LUGGER with from 5 to 10 buckets on each job. Paving and repair work, laying pipe lines, building sewers, planting parkways and hundreds of other city jobs, can be done quicker and cheaper the LOAD LUGGER way. Built in sizes from 1½ to 4 yards capacity . . . for mounting on standard trucks.

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*Distributors in all Principal Cities*

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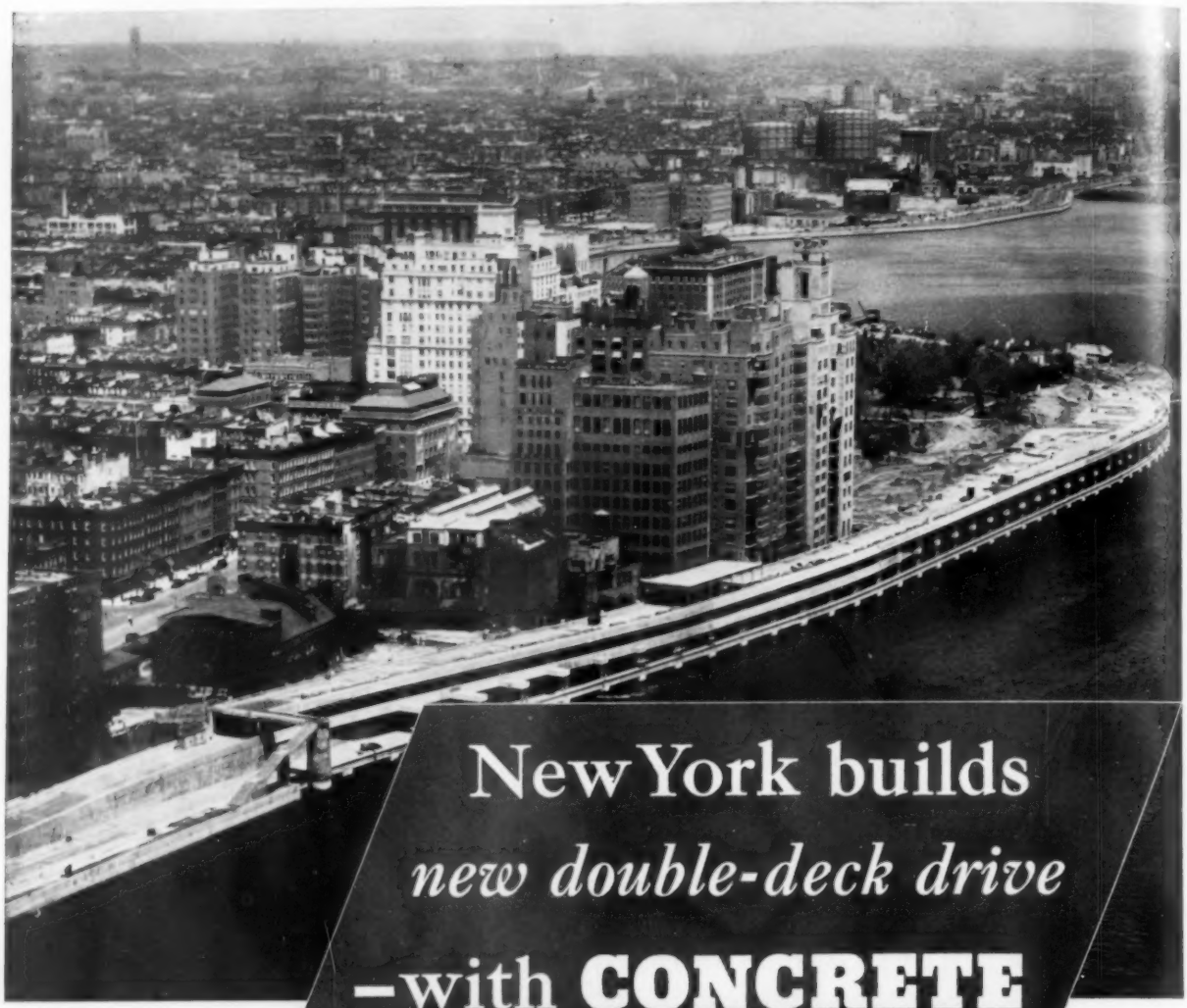
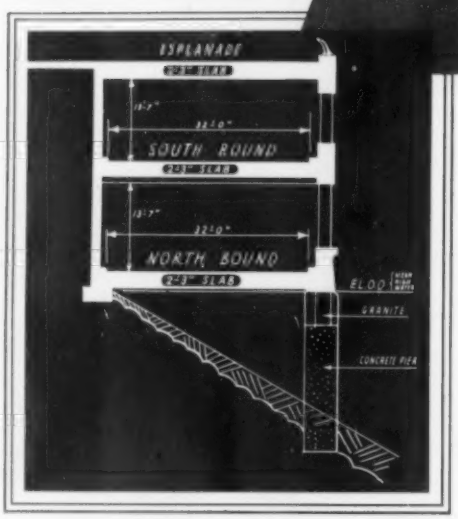
Brooks EQUIPMENT AND MFG. CO.



# New York builds *new double-deck drive* –with **CONCRETE**




Cross-section showing unusual design of New York's new East River Drive north of 80th. Built under direction of Office of the Borough President of Manhattan, City of New York.

A double-decked, concrete-paved shoreline structure is a feature of New York's new East River Drive north from 80th Street.

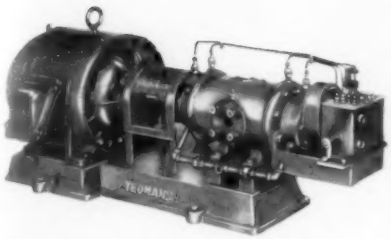
Today's motoring in New York City is better, safer and more comfortable because of the 4,000,000 sq. yd. of concrete pavement placed on bridges, roads, parkways, elevated highways and in tunnels during the last three years.

Concrete lends itself to the economical design of pavements and structures for a wide range of traffic needs. Concrete's even surface, uniform skid-resistance and high visibility aid traffic safety.

Improve your streets and roads year by year with concrete. It will help solve your traffic problem at low annual cost.

**PORTLAND CEMENT ASSOCIATION**
**Dept. 8-4, 33 W. Grand Ave., Chicago, Ill.**

*A national organization to improve and extend the uses of concrete . . . through scientific research and engineering field work*



*The New Yeomans Rotary Sewage Gas Booster*

## New Rotary Booster for Sewage Gas

A new application of the Yeomans rotary compressor, which has been used for some time in the Yeomans-Shone air-operated sewage ejectors, has been made at the new Duluth, Minn., sewage-treatment plant, for which Burlingame, Hitchcock and Estabrook of Minneapolis, Minn., are the consulting engineers. In this plant, as in others, the amount of gas supplied by the digesters varies over wide limits, as do the gas requirements. This makes waste and scarcity alternate inevitably unless some means is provided for gas storage. If the gas were stored at normal pressures, the storage facilities would have to be so large as to offset the economies of the method.

At the Duluth plant the gas is taken from the digesters at pressures of 8 to 10 inches of water and stored in a 36-foot Hortonsphere at 25 to 30 pounds pressure by means of Yeomans rotary compressors. The gas is then released as needed, through reducing valves for heating the digesters and incineration.

Yeomans compressors are of the multi-cellular positive displacement oil-lubricated type with special heat-resisting composition blades. The character of the blades is such that there can be no scoring of cylinder walls, and yet the wear of the blades is extremely slow and they are easily and inexpensively renewable. Lubrication is by means of mechanical force feed lubricators with liquid sight feeds, mounted on brackets on outboard cylinder heads and driven from the end of the compressor shafts. In place of the conventional stuffing-boxes, these machines are equipped with ground metal shaft seals with automatic take-up, requiring no attention, and are of the same design as seals used on Yeomans rotary ammonia gas boosters. Complete information regarding these compressors may be secured from Yeomans Bros., Co., 1417 N. Dayton Street, Chicago, Ill.

## A New Rotary Swing for City Playgrounds

A new rotary swing, accommodating four children, but easily operated by one, has been developed in the Hi-Lo Gy-Ro swing of the Everwear Mfg. Co., Springfield, Ohio. Each child stands in two stirrups, one foot in each, holding to the suspension pipes. By shifting his weight first on one foot and then on the other, he alternately depresses each propelling lever, which motivates the meshed gears, angled to the cylinders at the top of the center post, thus causing the outfit to rotate. By increasing the rate of his weight shift, the outfit rotates faster, and by decreasing the rate of the weight shift the outfit is slowed down and stopped.

The power principle involved incorporates a controlled method of coasting down hill. The exercise is sufficiently strenuous so that no one cares to stay on the swing for too long a time, thus increasing the number of children who use it in any period of time. This swing, constructed of metal, has an over-all circumference of 13 feet.

## Dodge Truck Has New Sales Manager

Lee D. Cosart, former General Sales Manager of the Plymouth Division of Chrysler Corporation, Detroit, Mich., has been appointed Sales Manager of the Truck Division, Dodge Bros. Corporation, Detroit, Mich. Mr. Cosart's first connection with the automobile business was with Dodge in Chicago in 1926, with whom he remained in various sales capacities until 2½ years ago, when he was appointed Assistant General Sales Manager of the Plymouth Division, and later General Sales Manager. Mr. Cosart's appointment fills a vacancy created by the recent resignation of T. W. Moss.

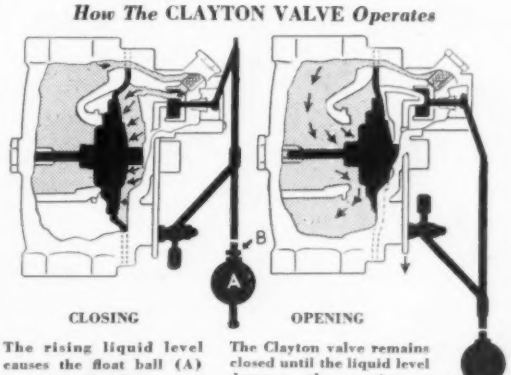

Here's Something New ...in smooth, quiet and trouble-free FLOW AND LEVEL CONTROL

*A 5-inch FLOAT BALL operates this 12-inch CLAYTON VALVE, without water hammer, vibration or line shock.*

**The Clayton *Feather-Touch* Control Float Valve is hydraulically operated, closing and opening only as the line pressure is applied or relieved in the hydraulic chamber by means of a float operated pilot valve. A two-ounce "touch" on the pilot arm will operate the Clayton Valve, regardless of capacity or pressure of the flow being controlled. The valve is always wide open or drip-tight shut. No lingering in a partially open or closed position to cause vibration, water hammer and line shock. The revolutionary operating principle of the Clayton *Feather-Touch* Control Float Valve makes it adaptable to many uses never before practical with float valves of conventional design. Mail coupon or write for Bulletin AC-8, showing various installations.**

Sold By CRANE CO.

***How The* CLAYTON VALVE *Operates***




**CLOSING**

**The rising liquid level causes the float ball (A) to contact the closing stop (B), rotating pilot to admit full line pressure to hydraulic chamber. The line pressure thus exerted against the full area of the diaphragm and disc assembly in the hydraulic chamber overcomes the pressure at the smaller area of the valve seat, causing a positive seating and a drip-tight closed valve.**

**OPENING**

**The Clayton valve remains closed until the liquid level drops to the opening or bottom "stop" (C) on the guide rod. As the float ball contacts this stop, the pilot valve disc is rotated to seal off the line pressure entering the hydraulic chamber and open a free passage from the hydraulic chamber to atmosphere. Thus the line pressure forces the diaphragm and disc assembly off the seat to a wide-open position.**

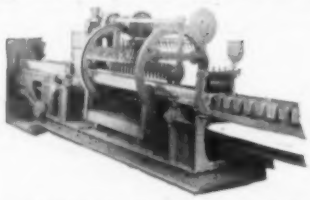
CLAYTON MFG. CO., Alhambra, Calif.
Mail.....copies of catalog bulletin on Clayton *Feather-Touch* control float valves to: AC-8

Name.....

Firm.....

Address.....

City.....



*Greater Uniformity . . . May Be Pre-inspected*

ONLY BRICK PAVEMENTS have a traffic surface that is made in a factory under positive control. Hence a highly uniform surface. And one that can be inspected before it is put in place. Modern methods of filler application further develop its non-skid properties.

And, in addition to a maximum degree of safety, brick offers the lowest cost per year of any pavement! More than any other modern pavement, brick is highly resistant to weather damage. Brick that have served two score years and more in severest service are being reclaimed and relaid on new bases.

Brick pavements have the best record for low cost wear. Use on roads or streets — for new construction or resurface jobs. National Paving Brick Association, National Press Building, Washington, D. C.

# BRICK

**FOR NEW AND RESURFACING JOBS**

When you write for that catalog, kindly mention THE AMERICAN CITY.

SEPTEMBER, 1940

# The American City

SEP 16 1940

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GENERAL LIBRARY
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Charleston, West Virginia
(See page 57)